

REPLACEMENT SHEET

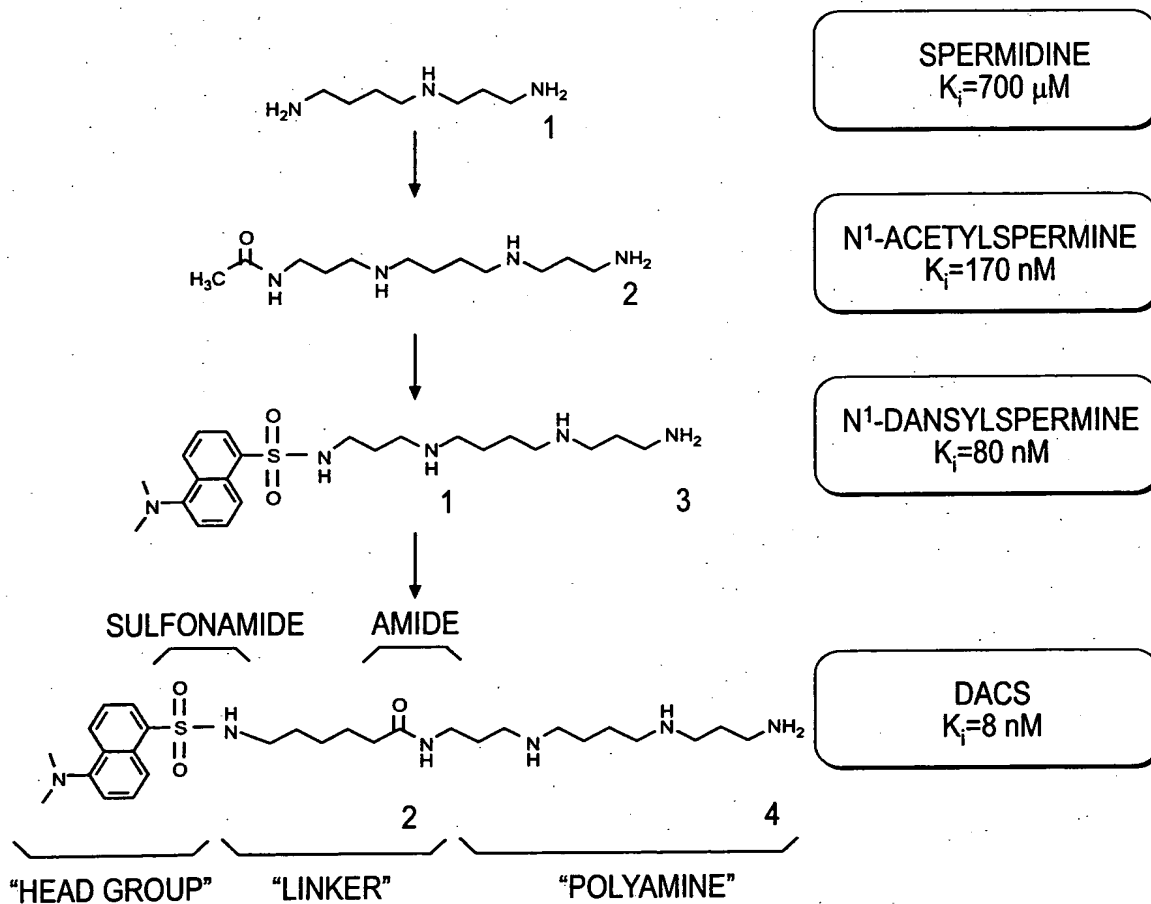
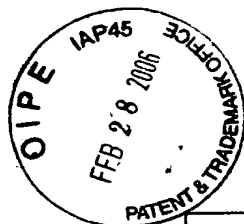


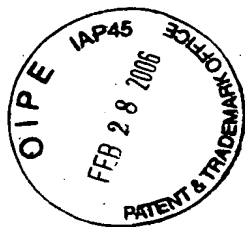
FIG. 1



REPLACEMENT SHEET

#	STRUCTURE	Ki(M) ^a	R ^b	METHOD ^c
3		0.080	20	I
4		0.010	400	IX, XIII
5		0.010	210	XIII
6		0.005	220	XIII
7		0.10	3.6	III
8		0.110	3.7	II
9		0.440	2.7	IV
10		0.050	>10	XV
11		0.190	2.4	XV
<p>a INHIBITION OF POLYAMINE UPTAKE: K_i DETERMINED FROM LINEWEAVER-BURKE DOUBLE RECIPROCAL PLOTS</p> <p>b INHIBITION OF TUMOR CELL GROWTH: R IS RATIO OF IC₅₀ (COMPOUND ALONE) TO IC₅₀ (COMPOUND + DFMO)</p> <p>c NUMBERS REFER TO EXAMPLES (DESCRIBING SYNTHESIS)</p> <p>d PURCHASED FROM ALDRICH CHEMICAL COMPANY</p>				

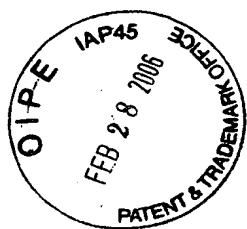
FIG. 2



REPLACEMENT SHEET

#	STRUCTURE	Ki(M) ^a	R ^b	METHOD ^c
12		0.150	4.3	XV
13		0.058	>47	XV
14		0.037	14	XVII
15		0.091	2.2	II
16		0.08	2.1	XV
17		0.43	>31	XV
18		0.083	40	XVII
19		0.24	>10	XV
20		0.28	1.0	XVII
21		0.084	1.0	XVII

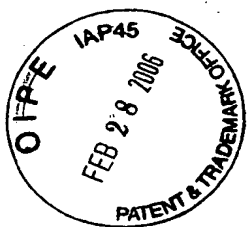
FIG. 2 (CONT.1)



REPLACEMENT SHEET

#	STRUCTURE	Ki(M) ^a	R ^b	METHOD ^c
22		0.066	11	XV
23		0.250	6.2	II
24		0.23	10	XV
25		0.067	8.6	XV
26		0.180	15	XV
27		0.650	9.9	XV
28		0.054	9.3	XV
29		0.076	>46	XV
30		0.120	>10	XV
31		0.083	>12	XII

FIG. 2 (CONT.2)



REPLACEMENT SHEET

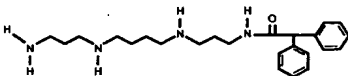
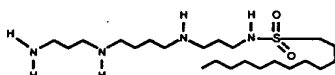
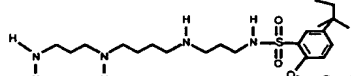
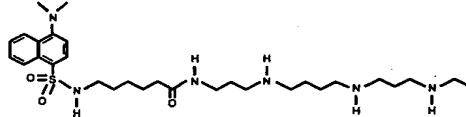
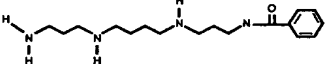
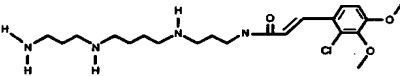
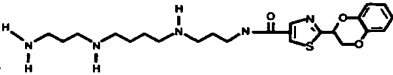
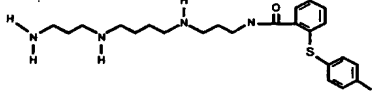
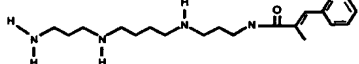
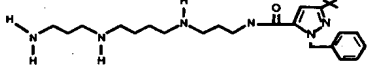
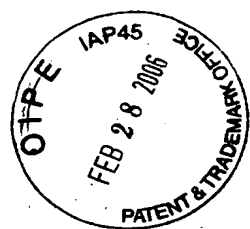
#	STRUCTURE	Ki(M) ^a	R ^b	METHOD ^c
32		0.093	2.1	XVII
33		0.17	1.4	XV
34		0.120	1.0	XV
35		0.041	33	XIII
36		0.61	>2	XVII
37		0.150	2.4	XVII
38		0.140	1.0	XVII
39		0.500	1	XVII
40		0.086	18	XVII
41		0.200	1.0	XVII

FIG. 2 (CONT.3)



REPLACEMENT SHEET

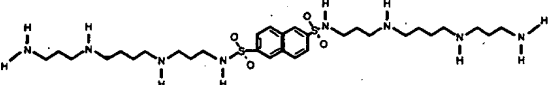
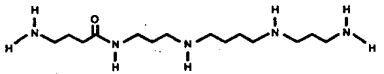
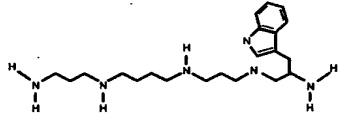
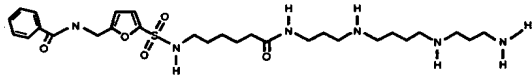
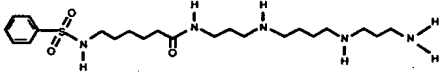
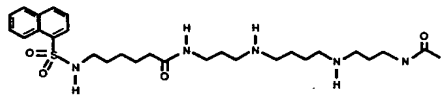
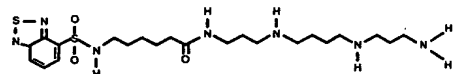
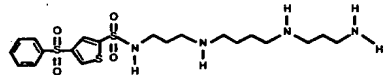
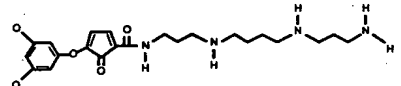
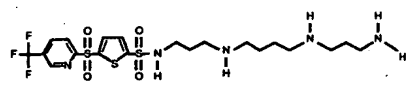
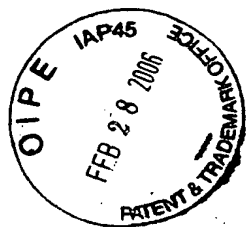
#	STRUCTURE	Ki(M) ^a	R ^b	METHOD ^c
42		0.110	1.1	XIV
43		0.033	76	XVII
44		0.073	39	XIII
45		0.052	3.0	XIII
46		0.082	63	XIII
47		2.1	6.8	XII
48		0.079	>49	XII
49		0.067	3.2	XV
50		0.12	1.0	XVII
51		0.083	1.5	XV

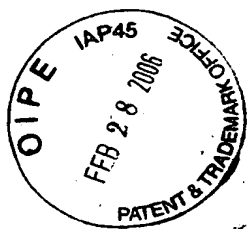
FIG. 2 (CONT.4)

REPLACEMENT SHEET



#	STRUCTURE	Ki(M) ^a	R ^b	METHOD ^c
52		0.094	5.3	XV
53		0.18	1.0	XV
54		0.19	2.0	XV
55		0.079	>1.1	IV
56		0.190		d
57		0.017	170	XV
58		0.050	189	XIII
59			>1	XIII
60			>1	XIII
61		0.200	1.0	XIII

FIG. 2 (CONT.5)



REPLACEMENT SHEET

#	STRUCTURE	K _i (M) ^a	R ^b	METHOD ^c
62			>2.0	XIII
63		0.050	>1	XIII
64		0.046		XIII
65		0.012		XIII
66		0.018	27	XIII
67		0.07	1.0	XIII
68		0.110	>4.4	XIII
69		0.22	1	XV
70		0.033	>12.2	XIII
71		0.160	>1.5	XIII

FIG. 2 (CONT.6)

REPLACEMENT SHEET

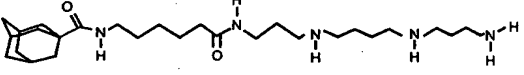
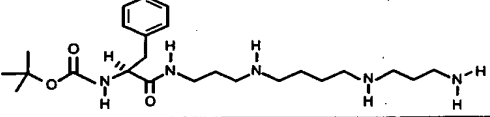
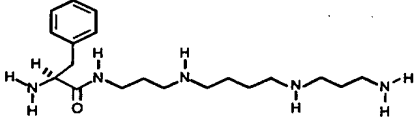
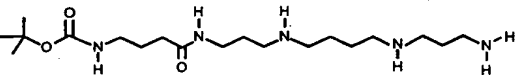
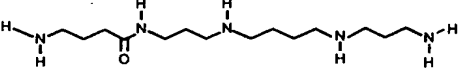
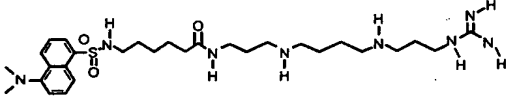
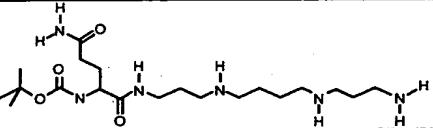
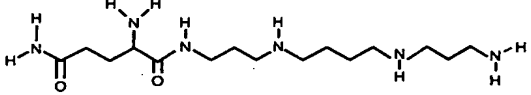
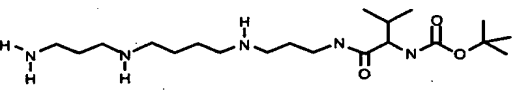
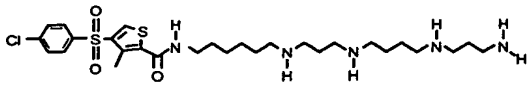
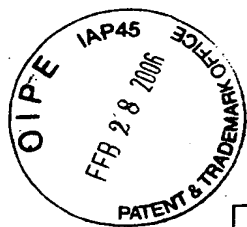
#	STRUCTURE	Ki(M) ^a	R ^b	METHOD ^c
72		0.031	>100	XIII
73		0.094	>1	XIII
74		0.200	1.0	XIII
75		0.130	>1	XIII
76		0.040	1.0	XIII
77		0.093	1	XIII
78		0.156		XIII
79		0.047	1	XIII
80		0.258		XIII
81		0.0096	153	XIII

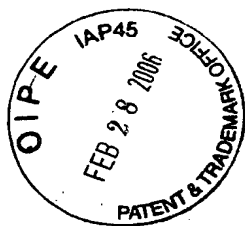
FIG. 2 (CONT.7)



REPLACEMENT SHEET

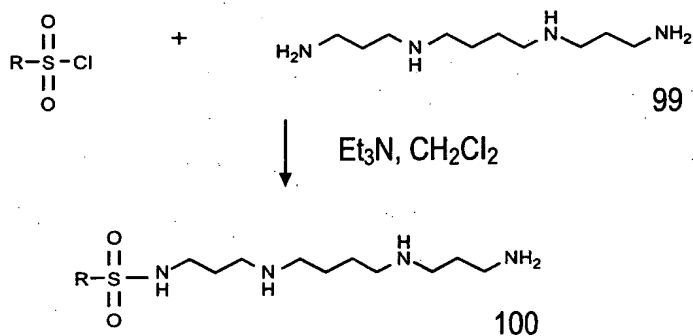
#	STRUCTURE	Ki(M) ^a	R ^b	METHOD ^c
92		0.300	1	XIII
93		0.061	1	XIII
94		0.042	1	XIII
95		0.050	1	XIII
96		0.034	1	XIII
97		0.027	1	XIII
98		0.180	12	d

FIG. 2 (CONT.9)

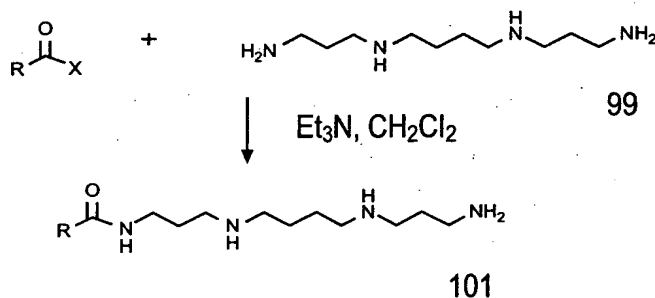


REPLACEMENT SHEET

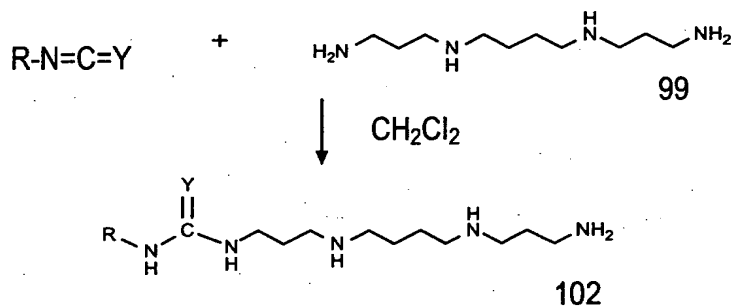
SULFONAMIDES



AMIDES



UREAS OR THIOUREAS



WHERE X=HALIDE OR N-HYDROXYSUCCINIMIDE ESTER
 R=HEAD GROUP
 POLYAMINE=SPERMINE (OR OTHER)
 Y=O OR S OR NHR
 (CORRESPONDING TO UREAS, THIOUREAS
 AND GUANIDINES, RESPECTIVELY)

FIG. 3

REPLACEMENT SHEET

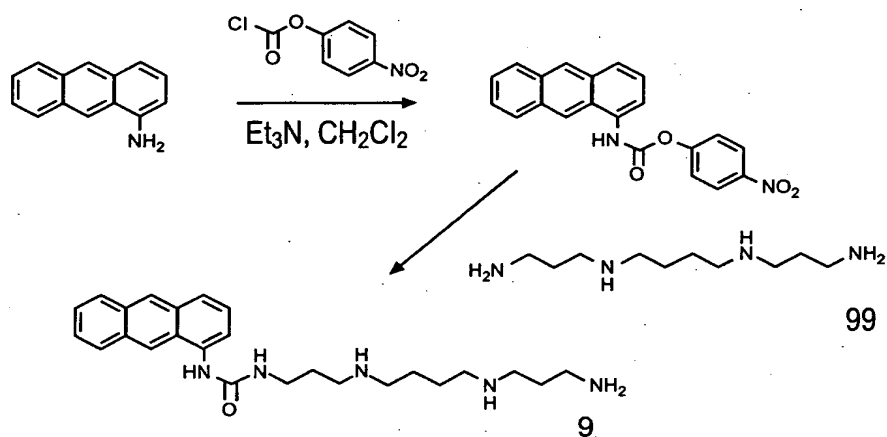
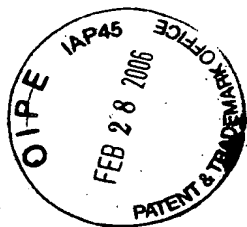


FIG. 4

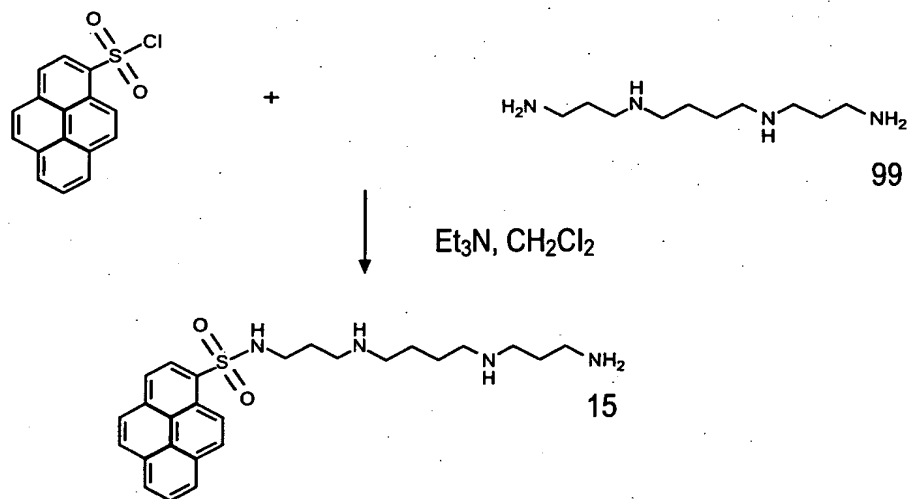


FIG. 5

REPLACEMENT SHEET

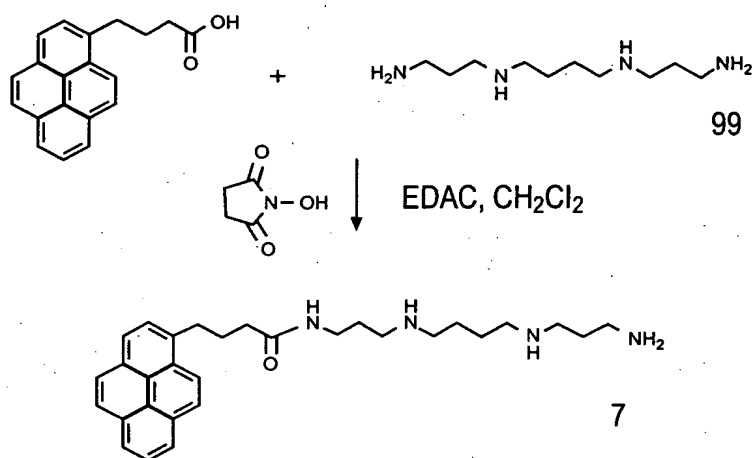
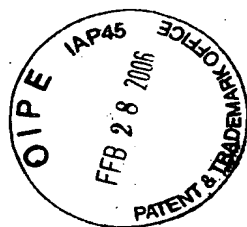


FIG. 6

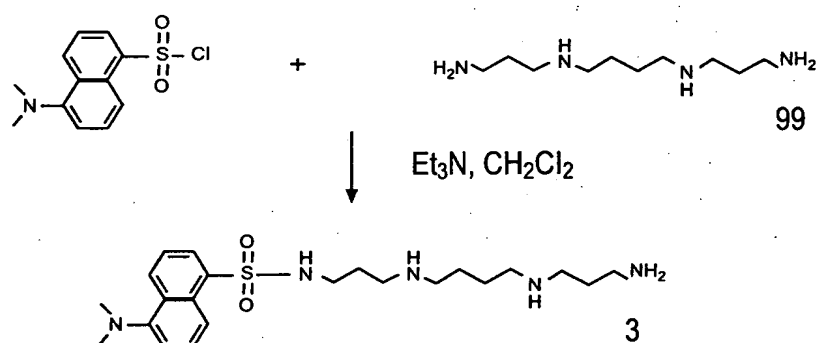


FIG. 7

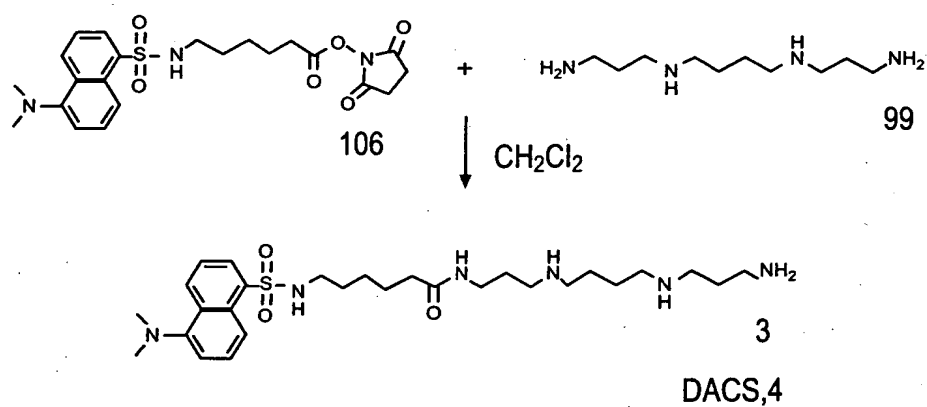


FIG. 8

REPLACEMENT SHEET

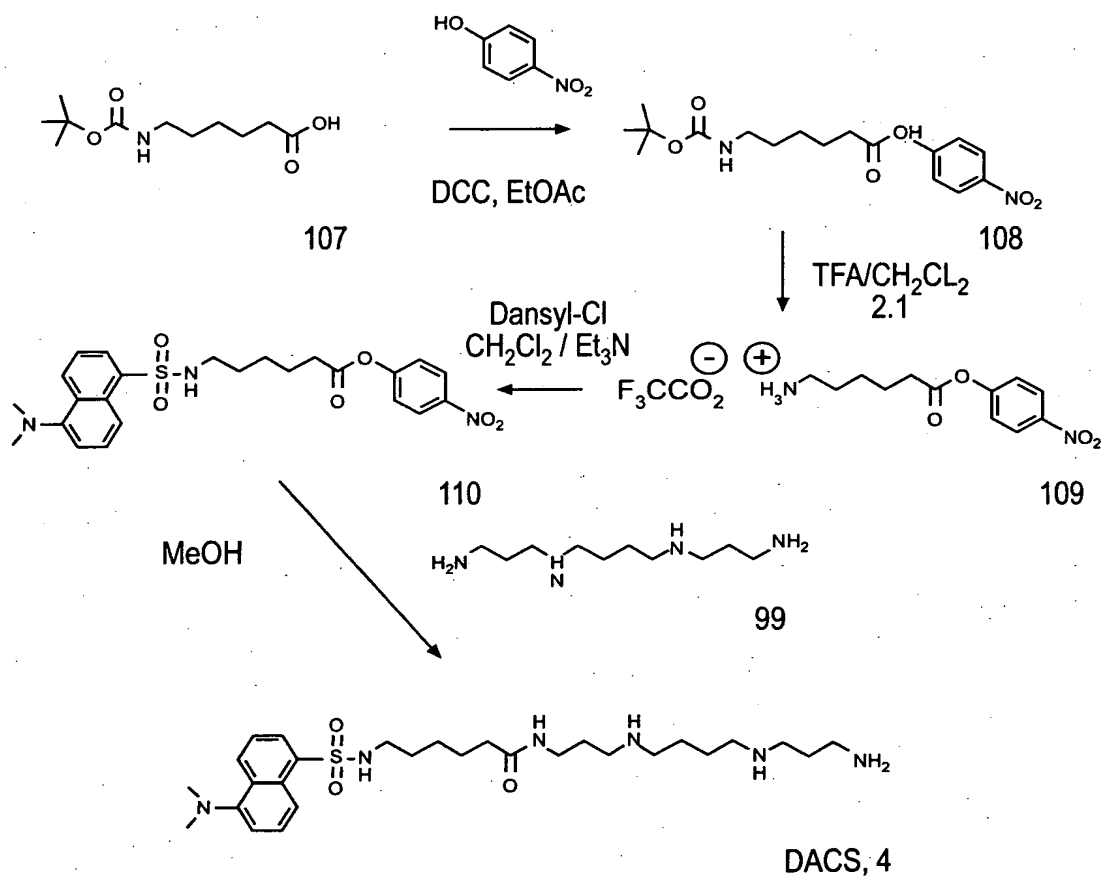
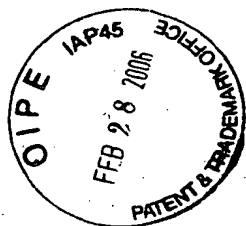
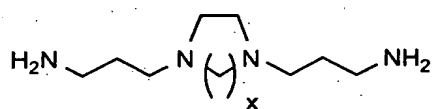
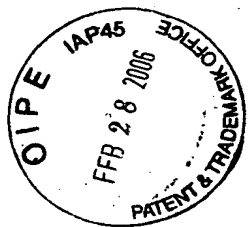
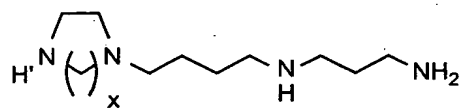


FIG. 9

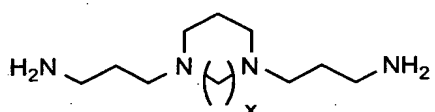
REPLACEMENT SHEET



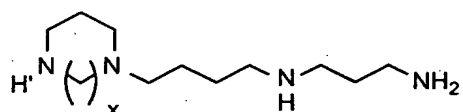
111a



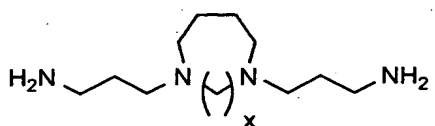
112a



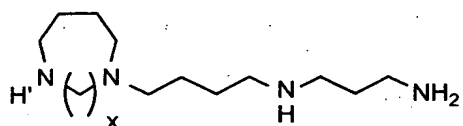
111b



112b

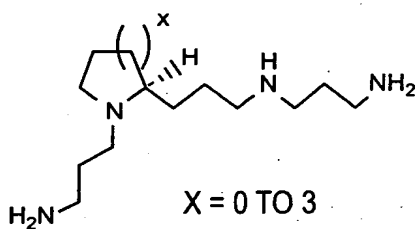


113



114

X = 1 TO 4

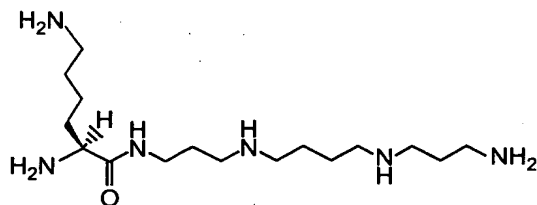
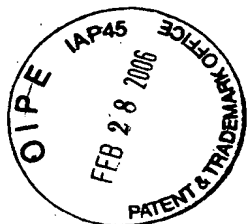


X = 0 TO 3

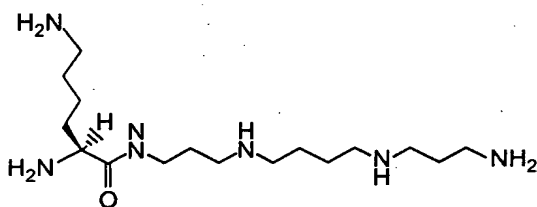
115

FIG. 10

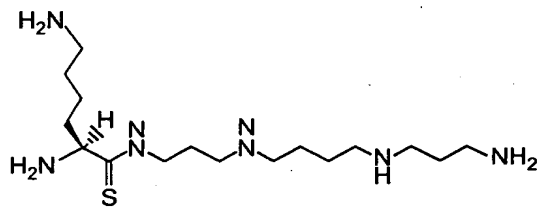
REPLACEMENT SHEET



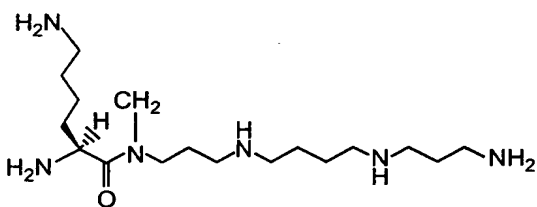
COMPOUND 1202
L-LYS-SPM



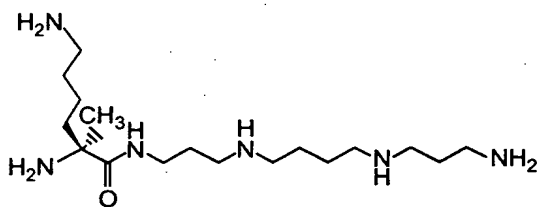
COMPOUND 1390
D-LYS-SPM



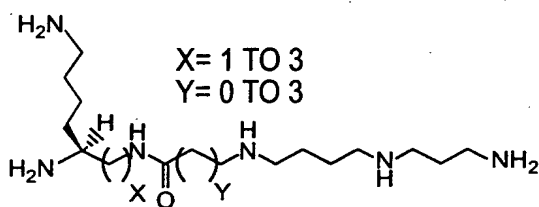
COMPOUND 1380
L-LYS-SPM THIOMIDE



COMPOUND 1391
L-LYS-SPM(METHYLAMIDE)



COMPOUND 1392
L-LYS-SPM(α -METHYL)



COMPOUND 1393-1405
L-LYS-SPM(ISOAMIDE)

COMPOUND 1202 AND VARIATIONS THEREOF.

FIG. 11a

REPLACEMENT SHEET

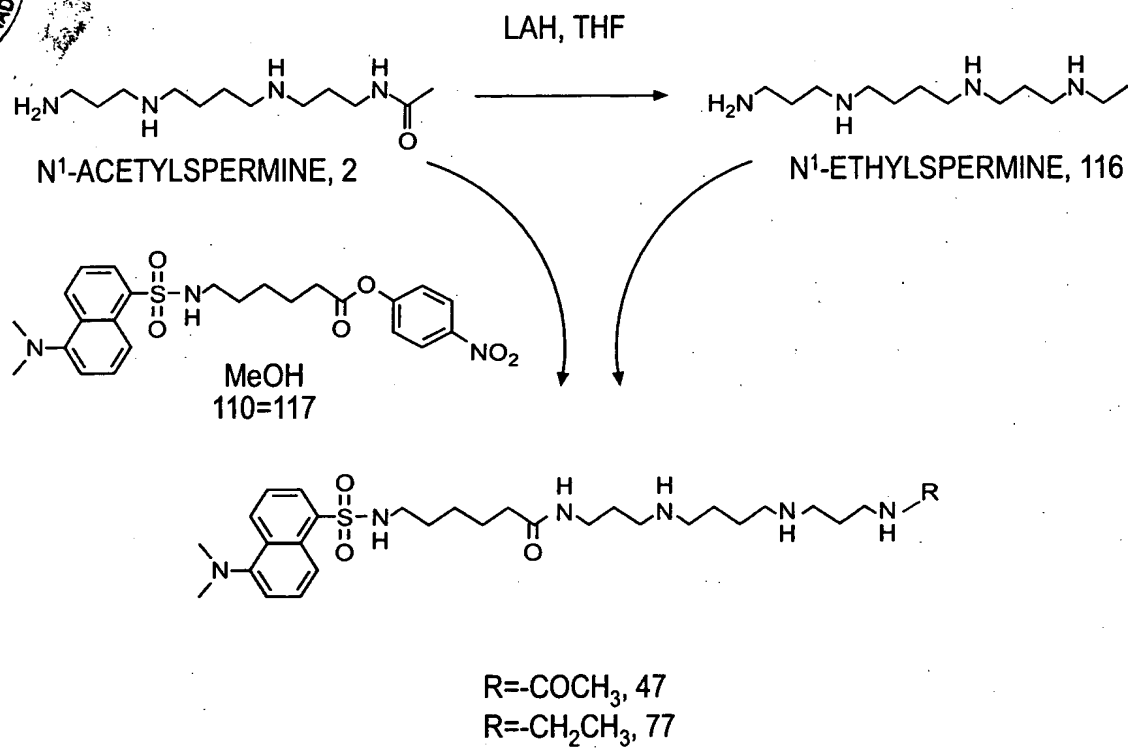
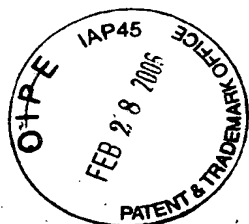
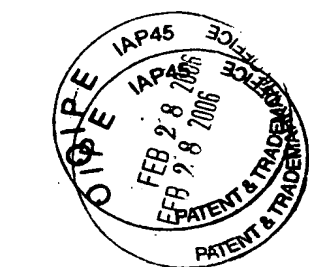


FIG. 11b

REPLACEMENT SHEET

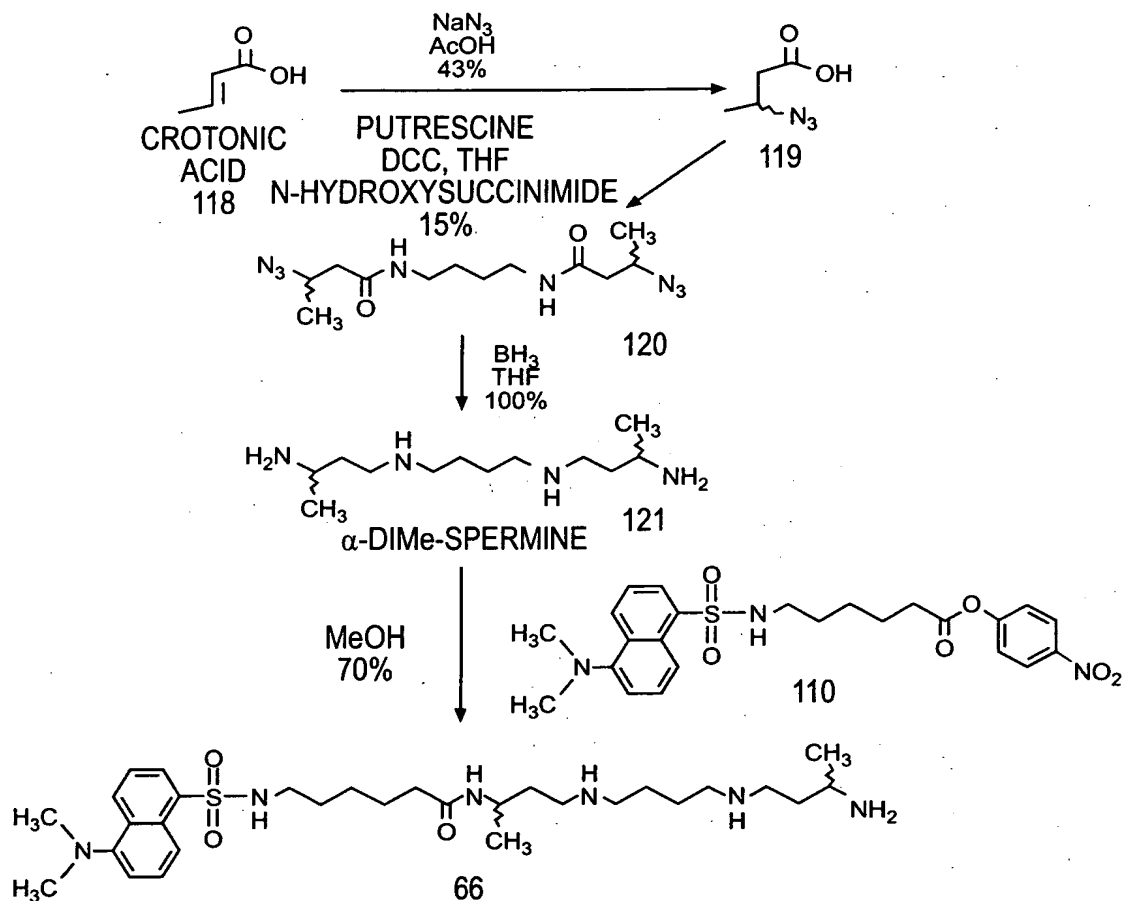
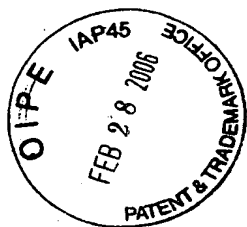
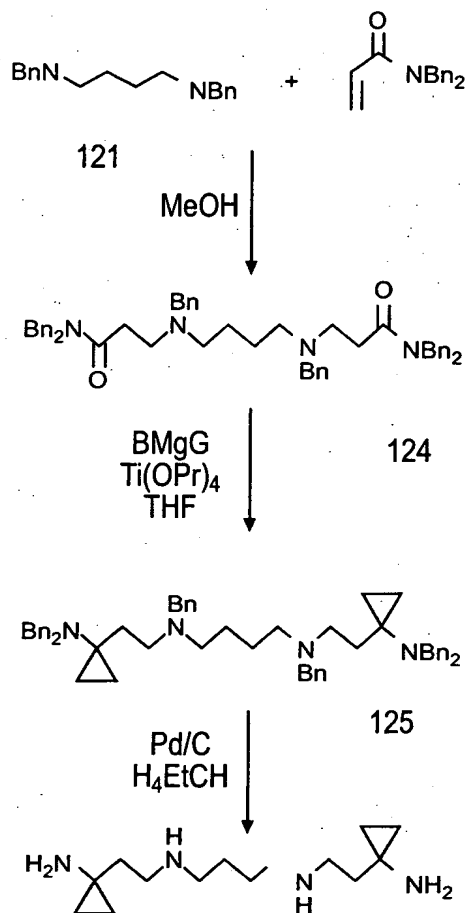
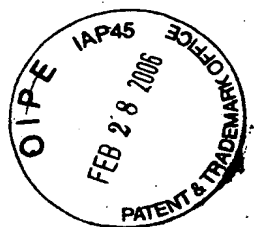
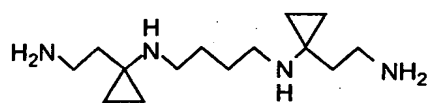


FIG. 12

REPLACEMENT SHEET



OTHER ANALOGS:



126b



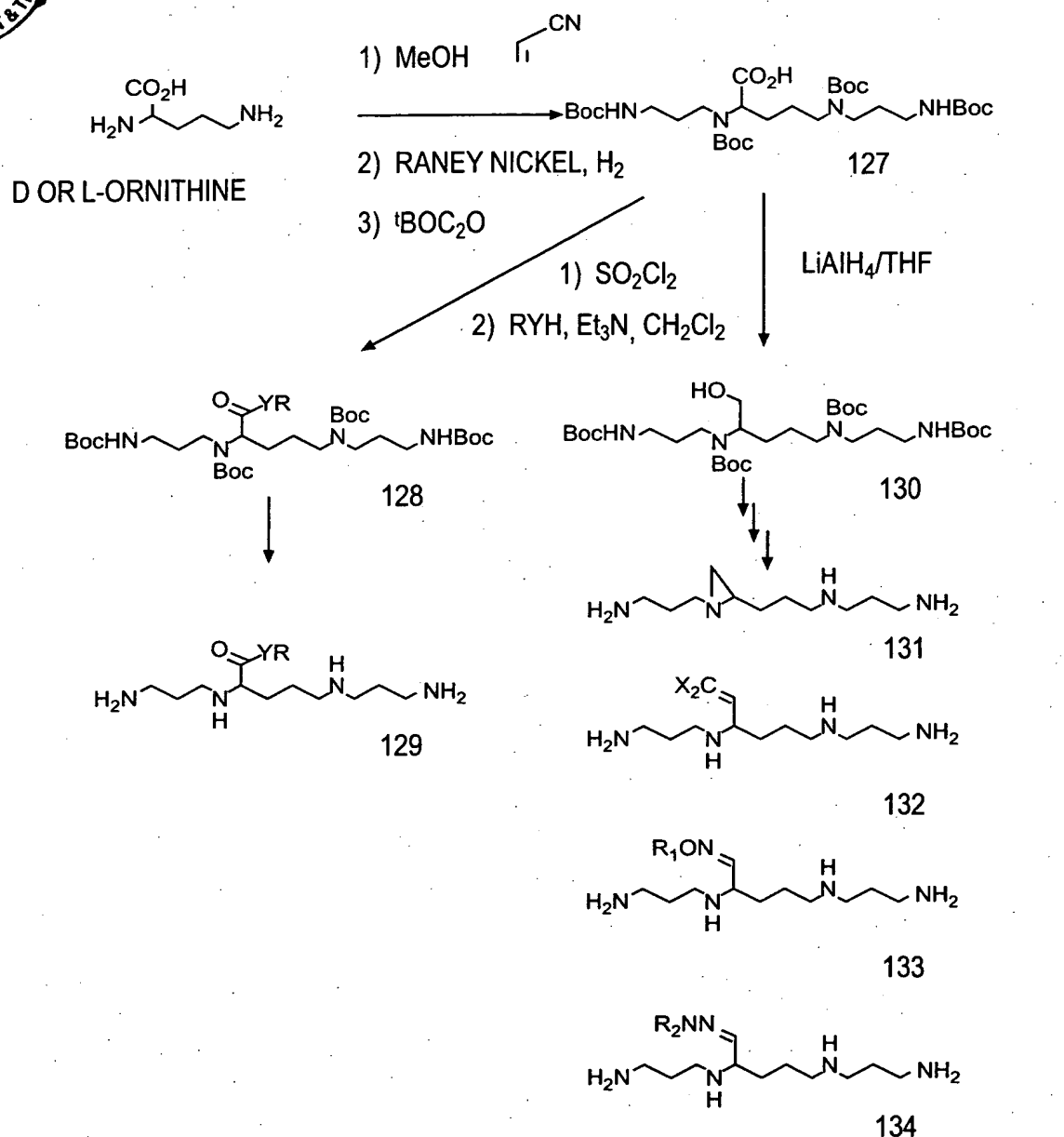
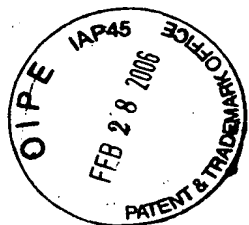
126c



126d

FIG. 13

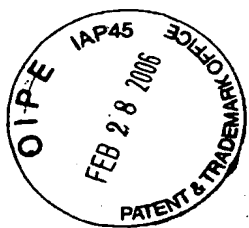
REPLACEMENT SHEET



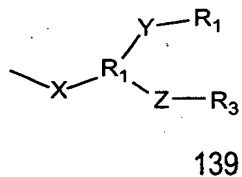
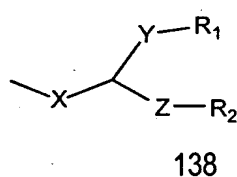
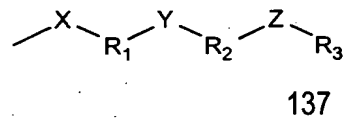
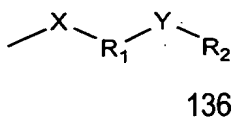
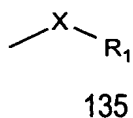
WHERE

$\text{Y} = \text{O, S OR NH};$
 $\text{R} = \text{VARIOUS GROUPS INCLUDING: PROPYLAZIRIDINE, PROPYLAMINE, HEXYLDANSYLSULFONAMIDE};$
 $\text{R}_1 = \text{H, CH}_3(\text{CH}_2)_n, \text{WHERE } n = 1 \text{ TO } 10;$
 $\text{X} = \text{H OR HALOGEN}$

FIG. 14



REPLACEMENT SHEET



WHERE X= SPACER₁, Y= SPACER₂; AND Z= SPACER₃; AND
R₁, R₂ AND R₃ CAN BE ALICYCLIC, AROMATIC, OR HETEROCYCLIC

FIG. 15

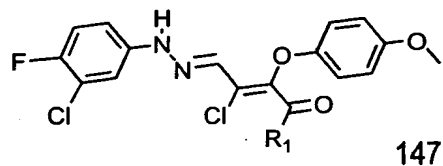
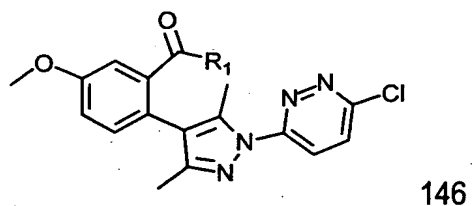
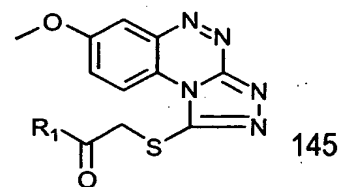
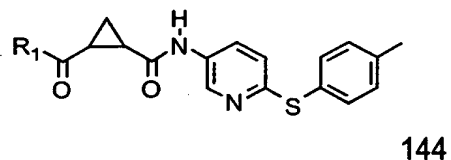
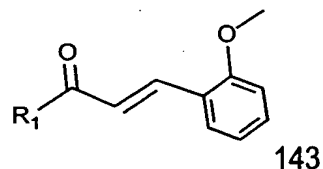
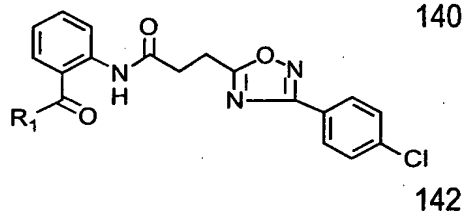
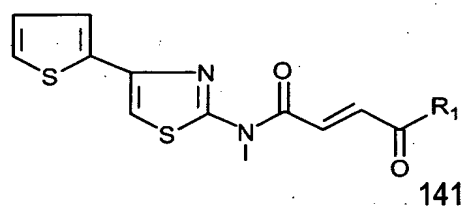
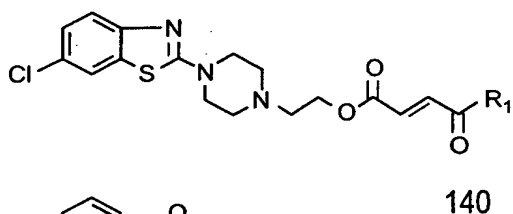


FIG. 16

EFFECT OF "HEADLESS" COMPOUNDS ON THE GROWTH OF MDA-MB-231
CELLS WITH ODC INHIBITORS

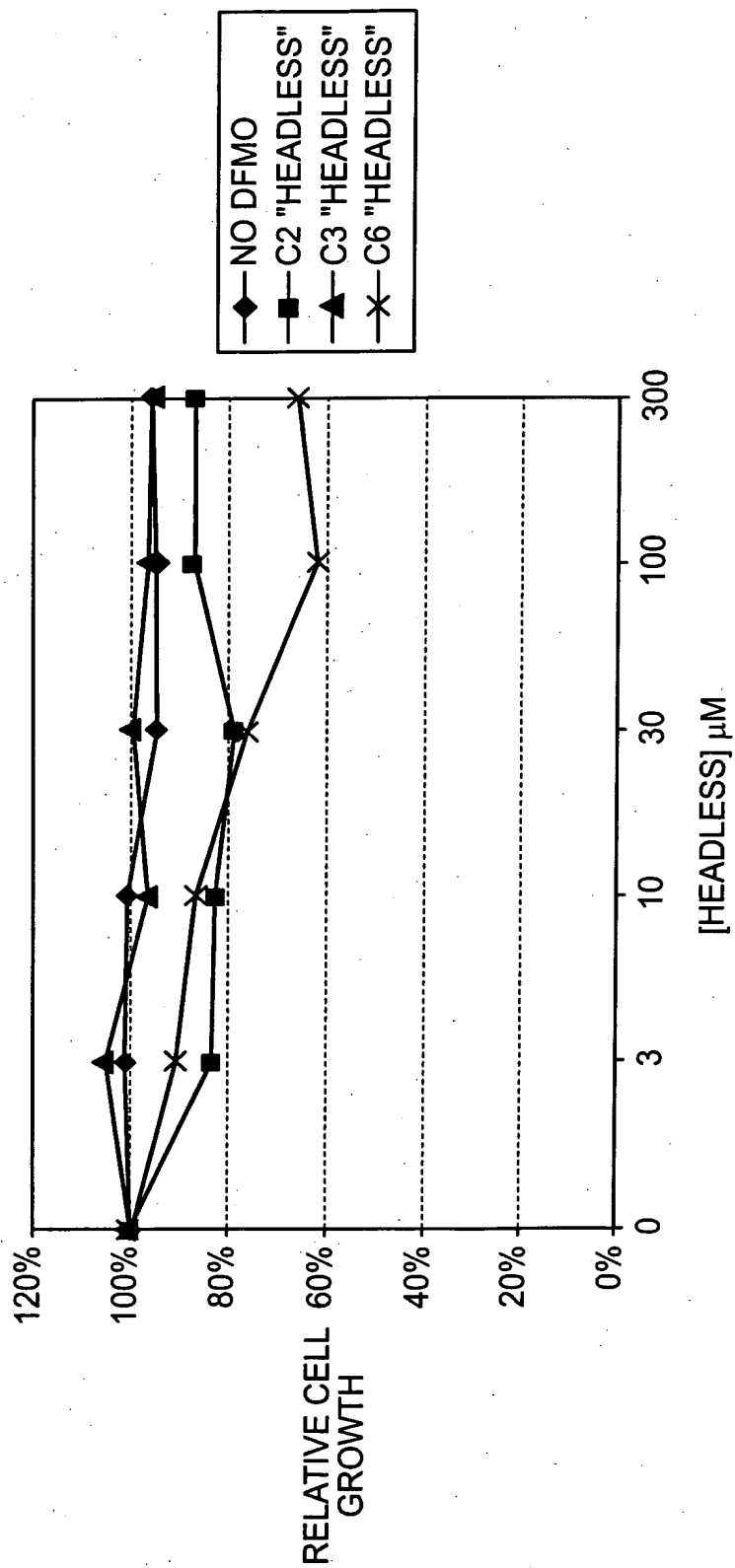
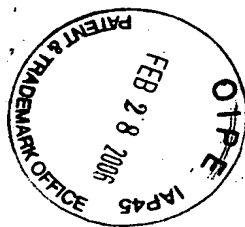


FIG. 17



EFFECT OF "HEADLESS" COMPOUNDS ON THE GROWTH OF PC3
CELLS WITH ODC INHIBITORS

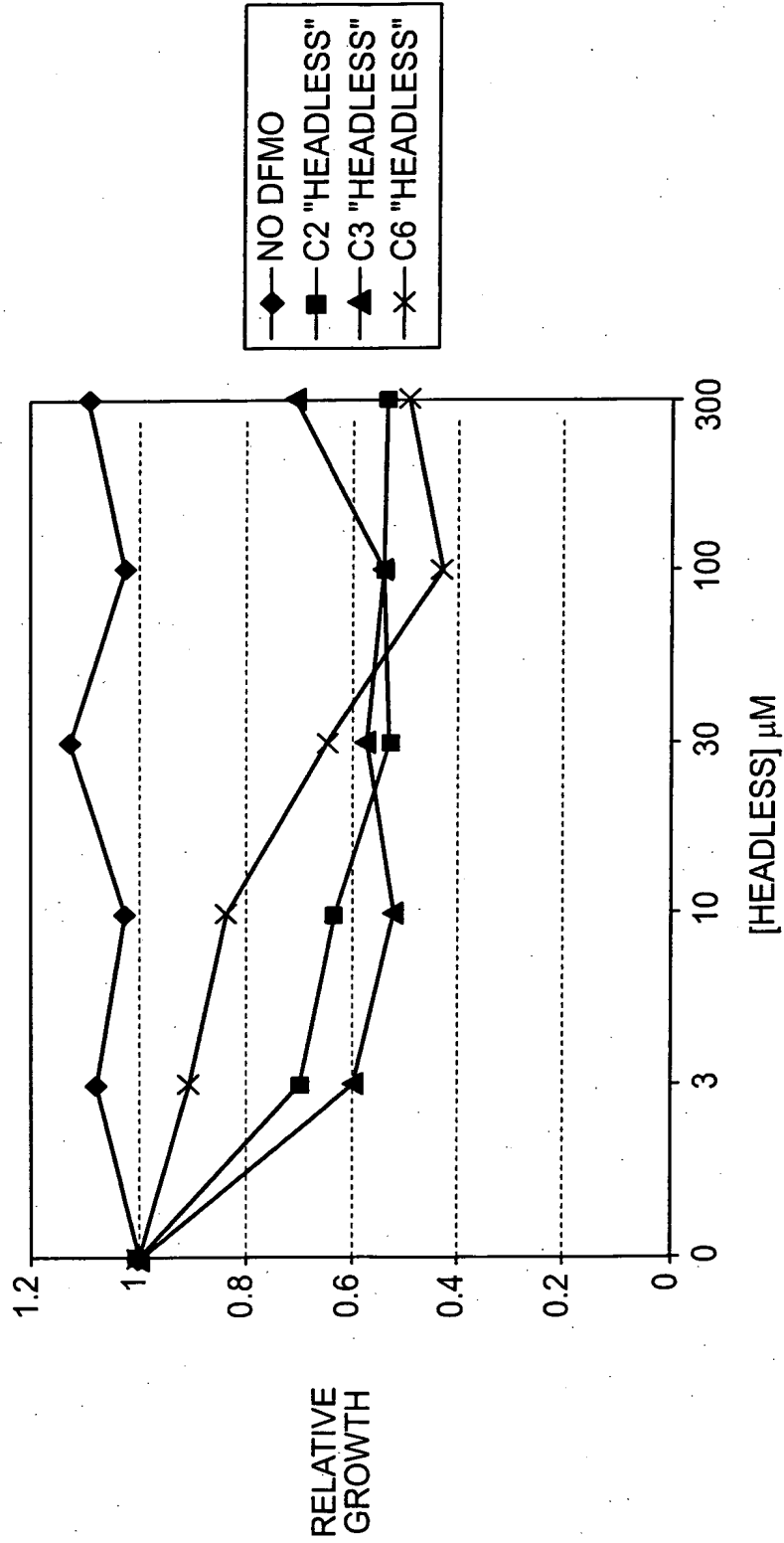
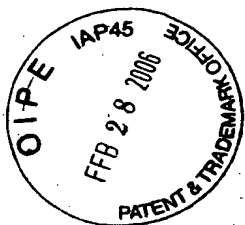
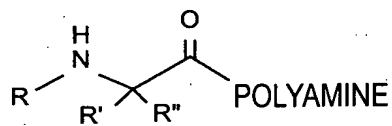


FIG. 18





REPLACEMENT SHEET



STEREOCHEMISTRY:
L IS S, D IS R


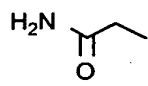

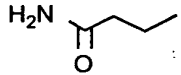

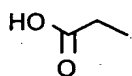
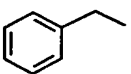
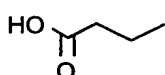
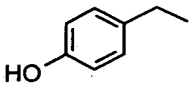
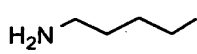
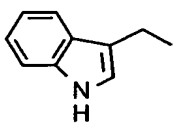
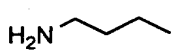

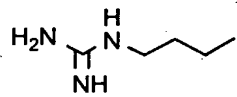

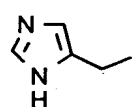
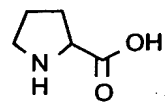
<u>R'</u>		<u>R'</u>	
-H	Gly	HS-CH ₂ -	Cys
-CH ₃	Ala	-S-CH ₂ -CH ₂ -	Met
	Val		Asn
	Leu		Gln
	Ile		Asp
	Phe		Glu
	Tyr		Lys
	Trp		Orn
	Ser		Arg
	Thr		His
			Pro

FIG. 19



DACS WITH ODC INHIBITOR ENHANCES THE GROWTH-INHIBITION OF MDA-MB-231 BREAST CARCINOMA CELLS

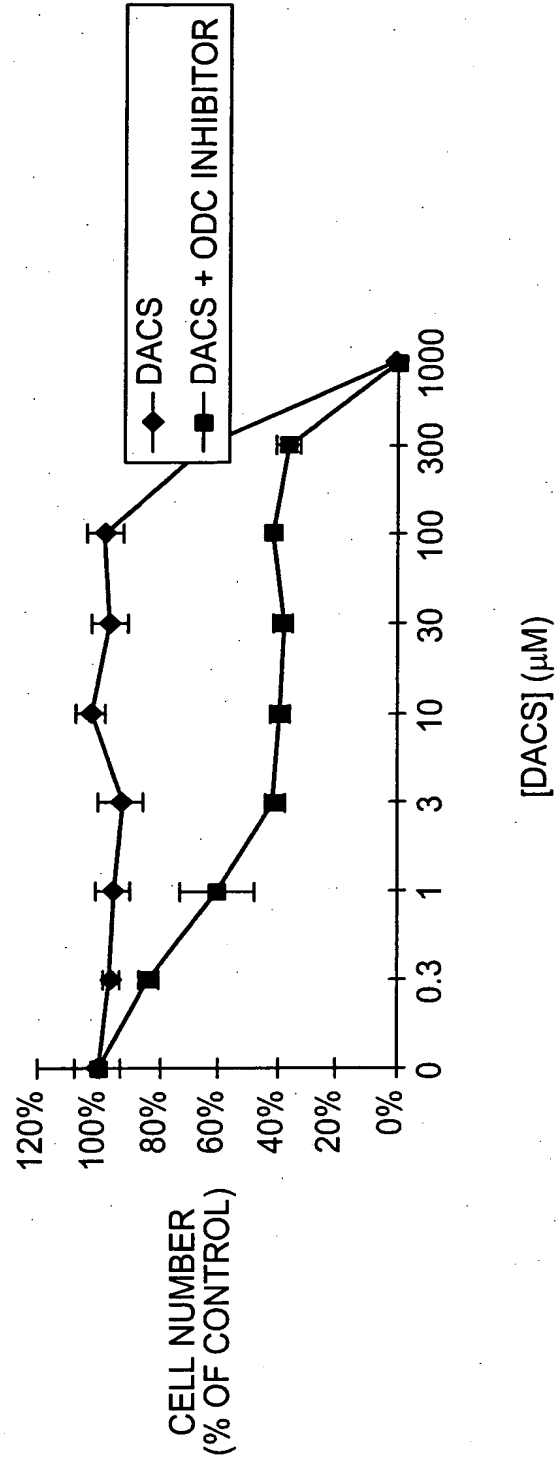
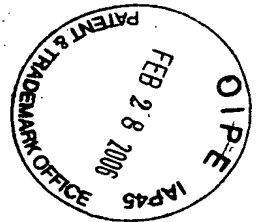
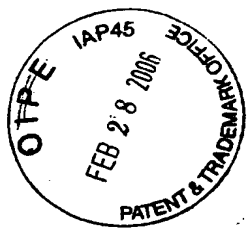


FIG. 22





REPLACEMENT SHEET

DACS INHIBITS GROWTH IN THE PRESENCE OF 1.0 μ M SPERMIDINE

CELL NUMBER

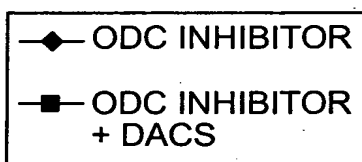
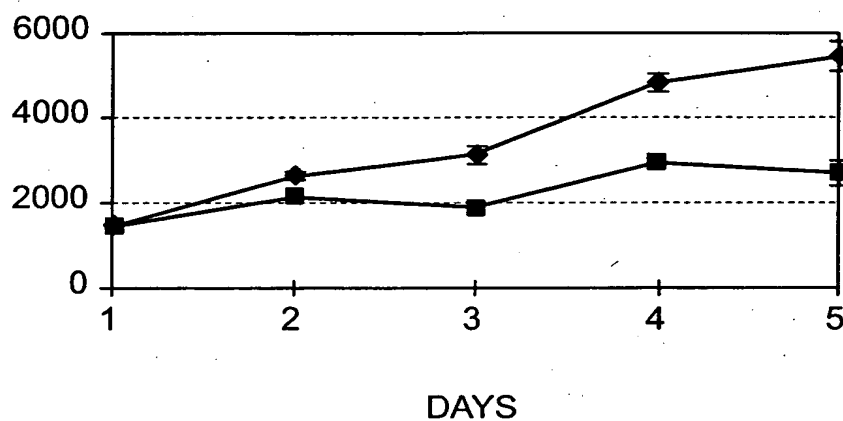


FIG. 23

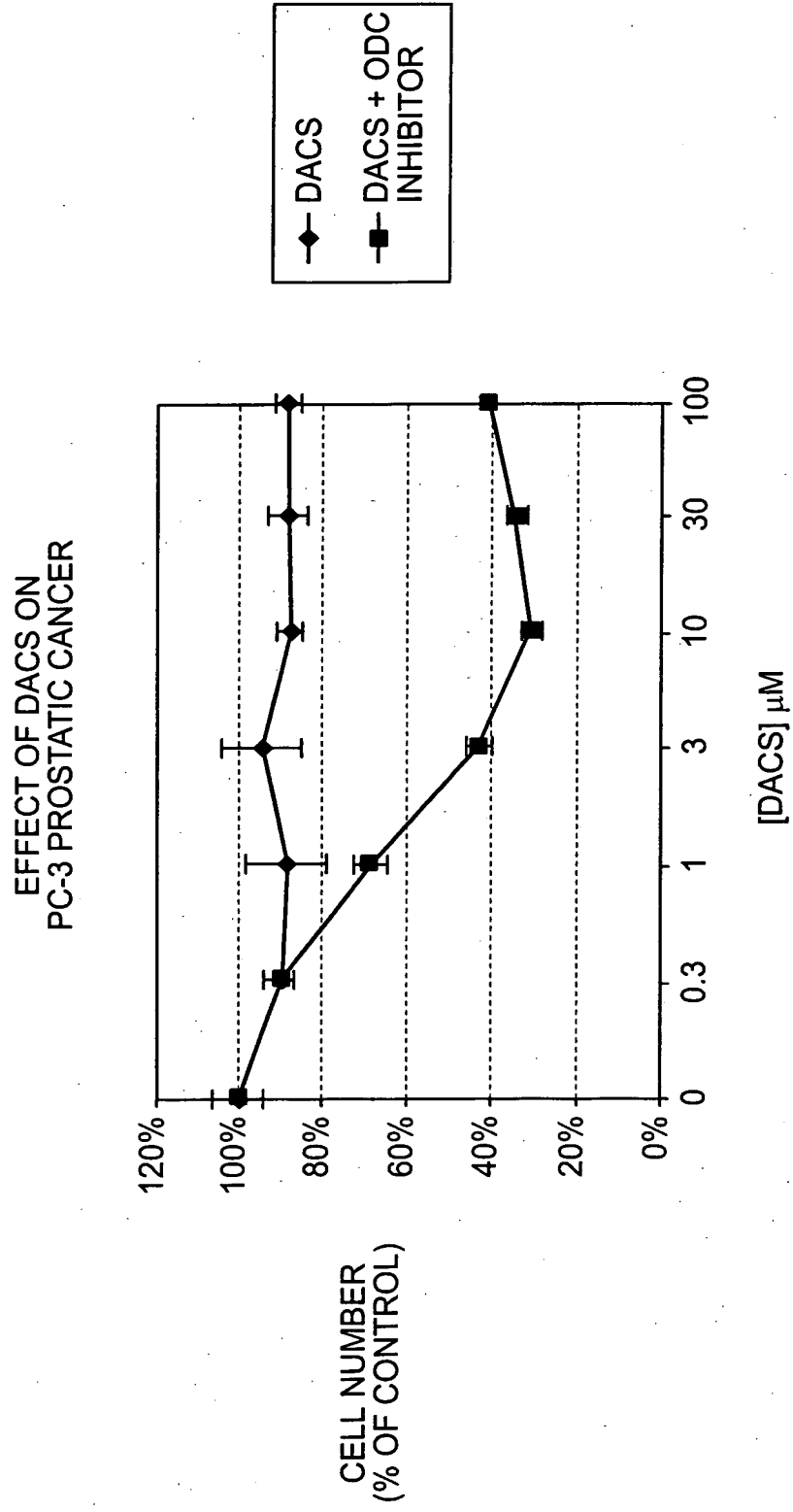
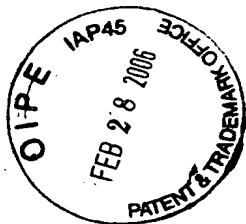
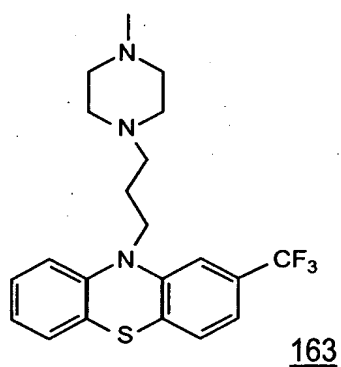
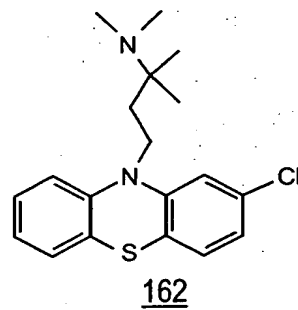
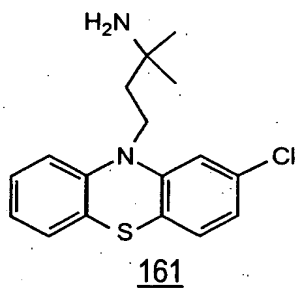


FIG. 24

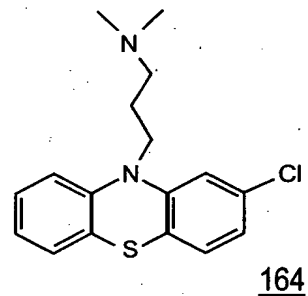




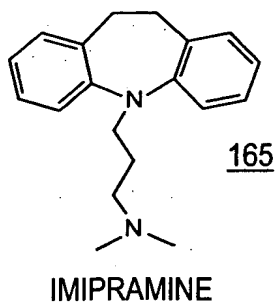
REPLACEMENT SHEET



TRIFLUOPERAZINE



THORAZINE



IMIPRAMINE

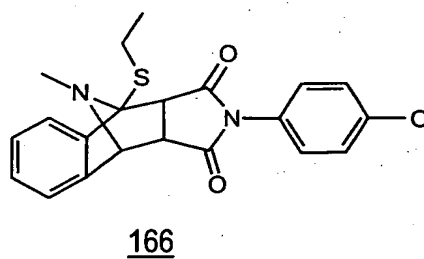
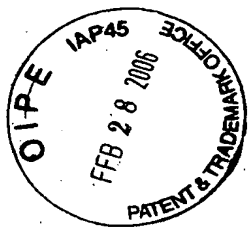


FIG. 25



REPLACEMENT SHEET

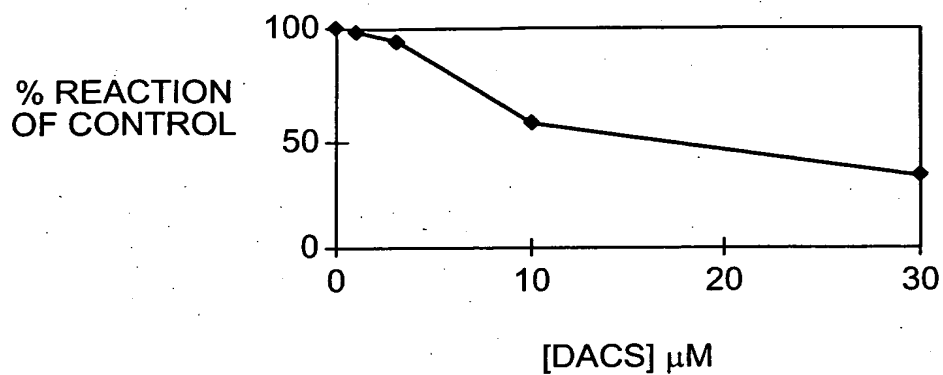


FIG. 26

1/RATE (PMOLES ^3H
SPERMIDINE/MIN) $^{-1}$

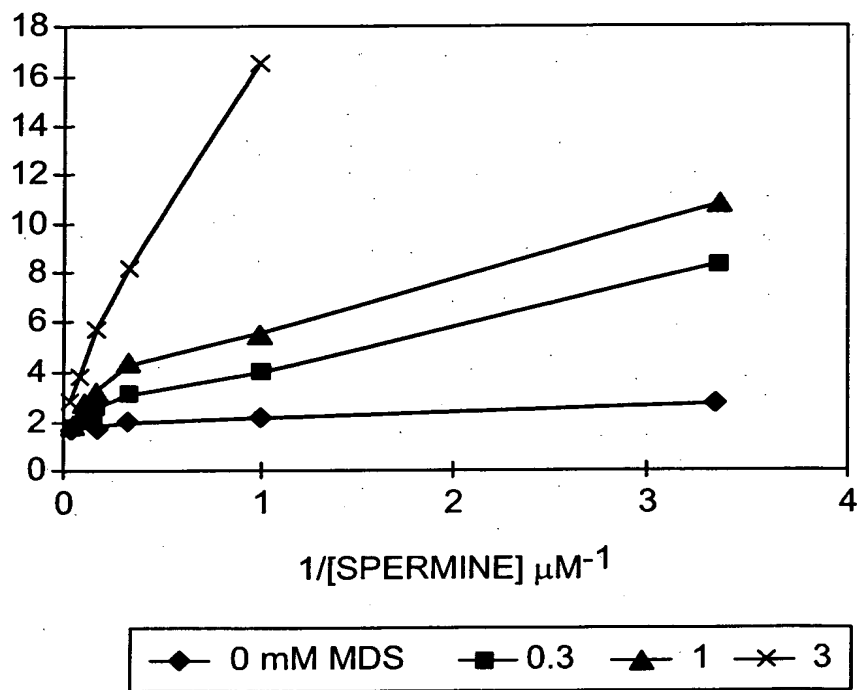


FIG. 27

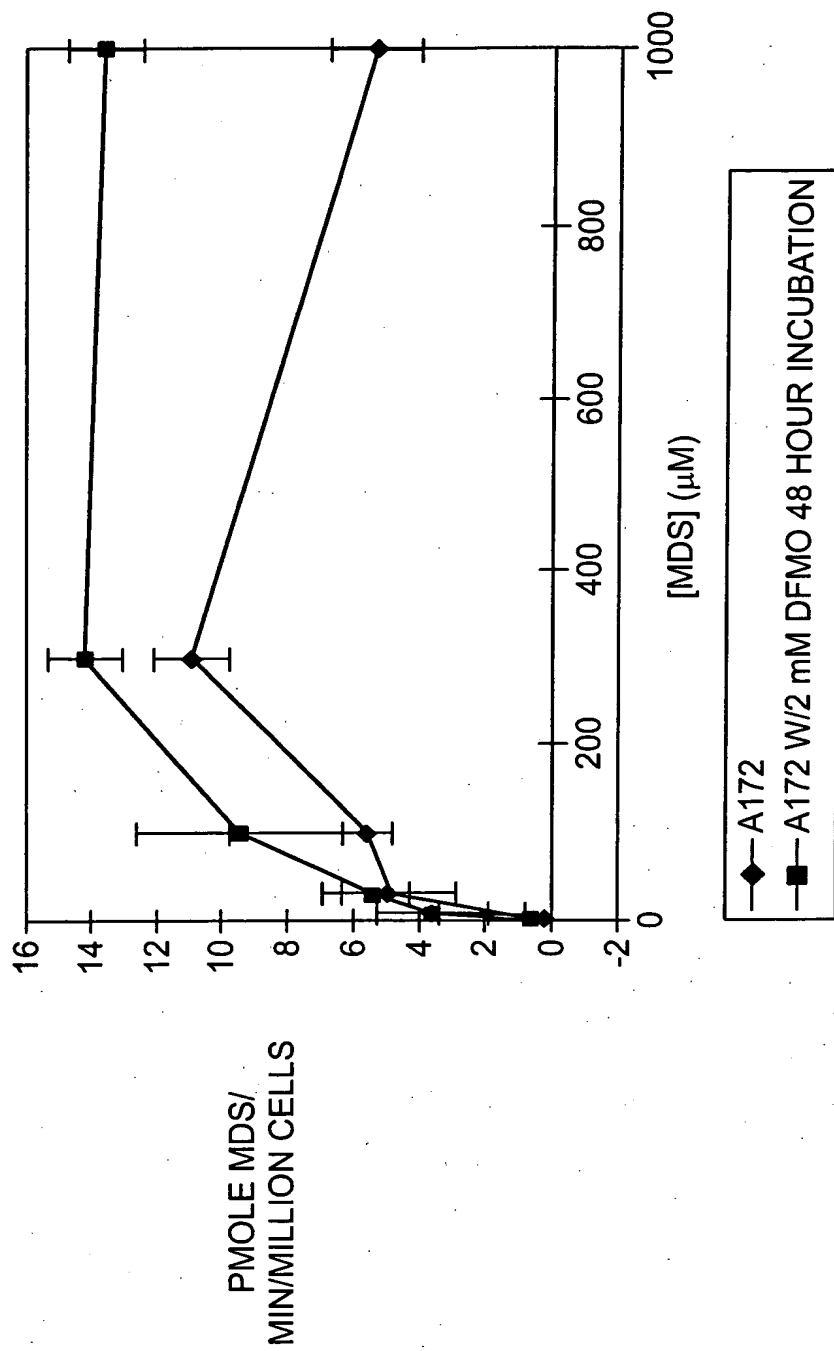


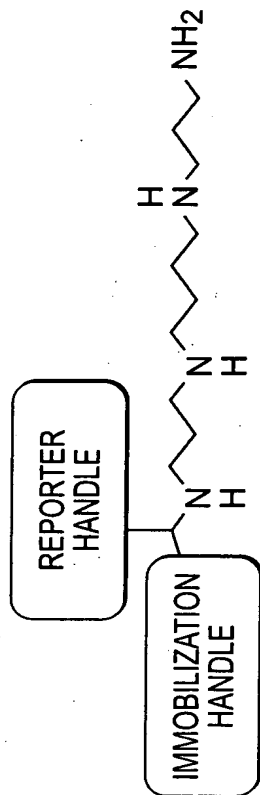
FIG. 28



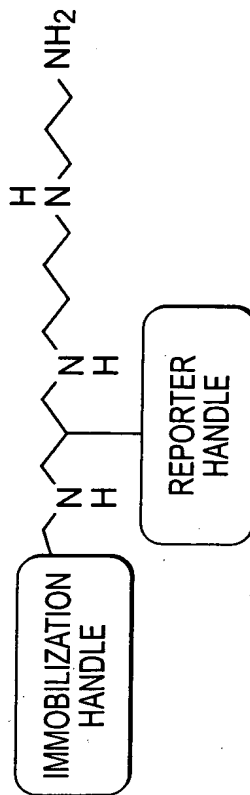


FIG. 30

A. REPORTER AND IMMOBILIZATION HANDLES ARE BOTH N¹-TERMINAL



B. REPORTER HANDLE IS INTERNAL AND IMMOBILIZATION HANDLE IS N-TERMINAL



C. IMMOBILIZATION AND REPORTER HANDLES ARE BOTH N¹- N¹² TERMINAL, RESPECTIVELY

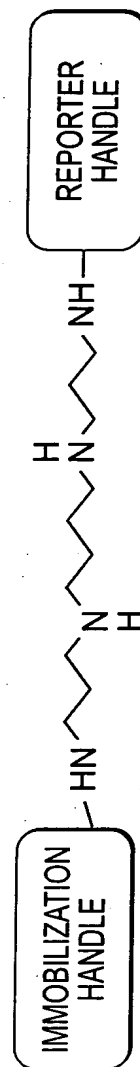
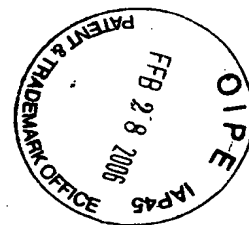


FIG. 31



DETECTION OF MDS AND DACS

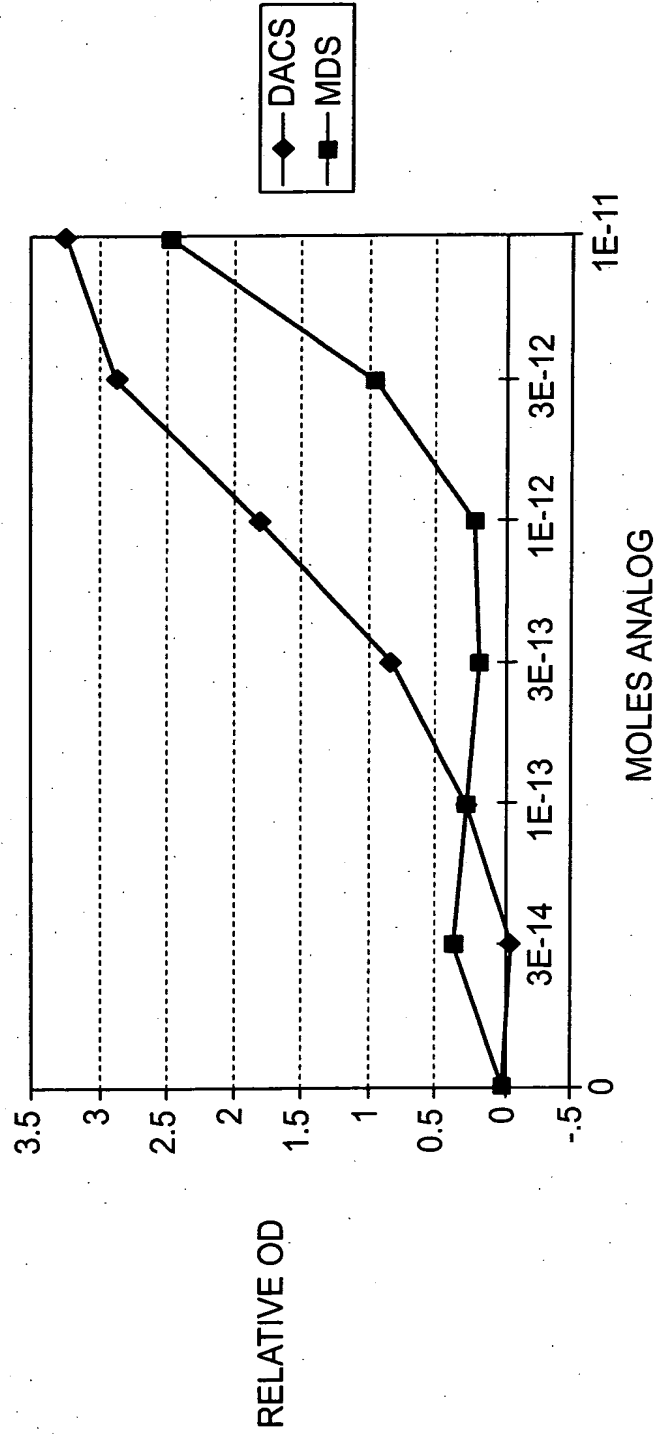


FIG. 32



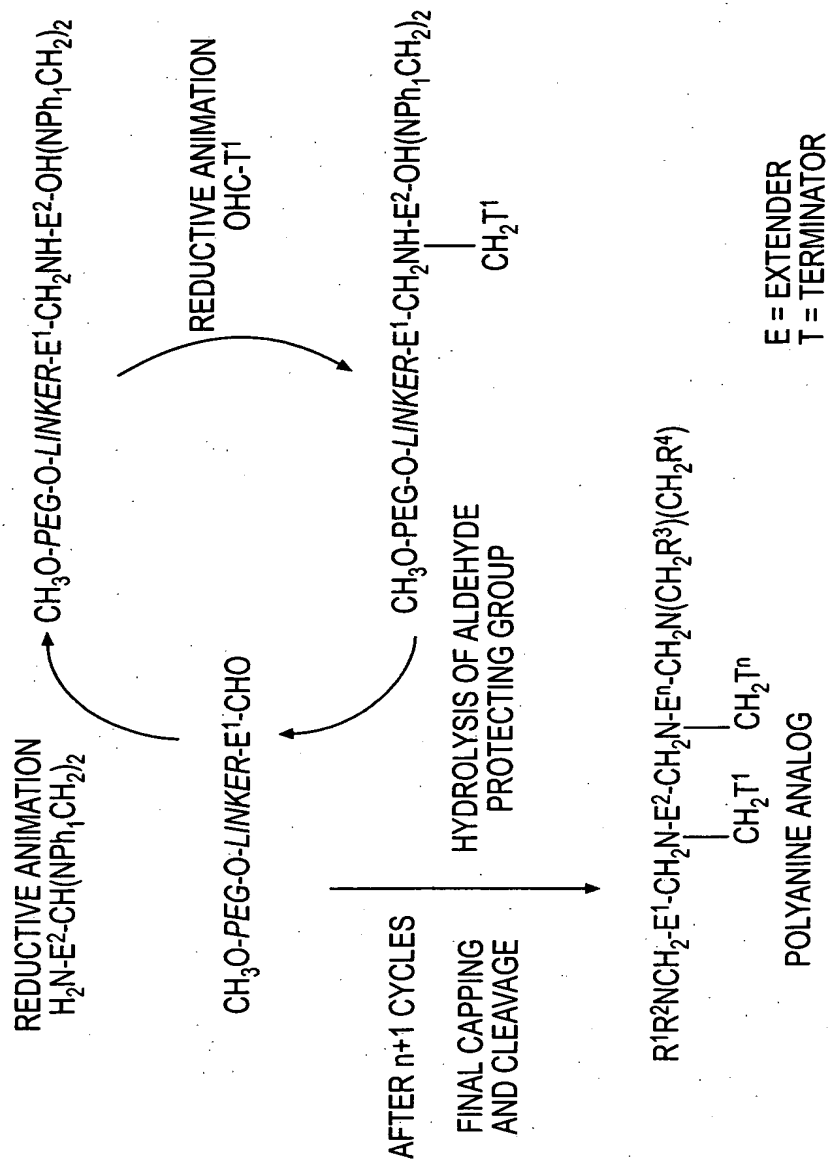
GENERAL SCHEME

FIG. 33



REPLACEMENT SHEET

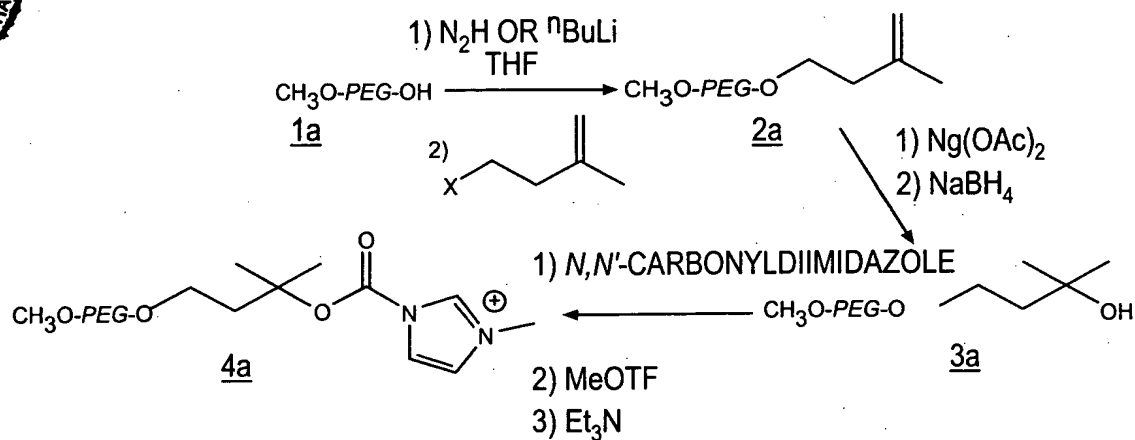
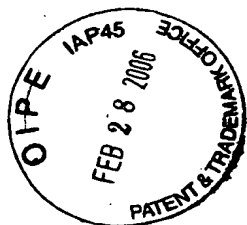


FIG. 34

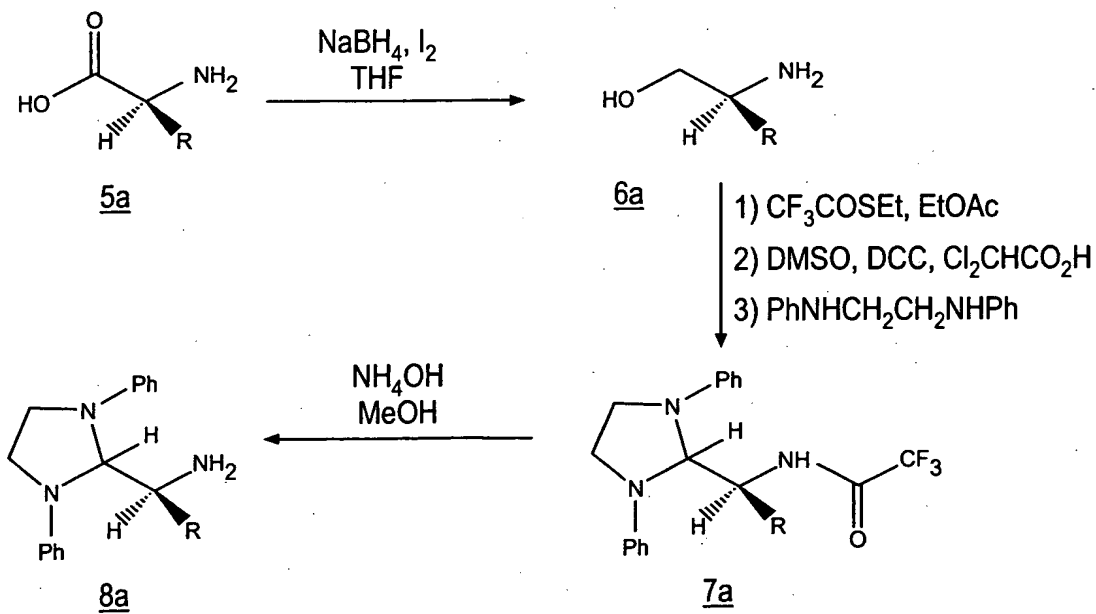


FIG. 35

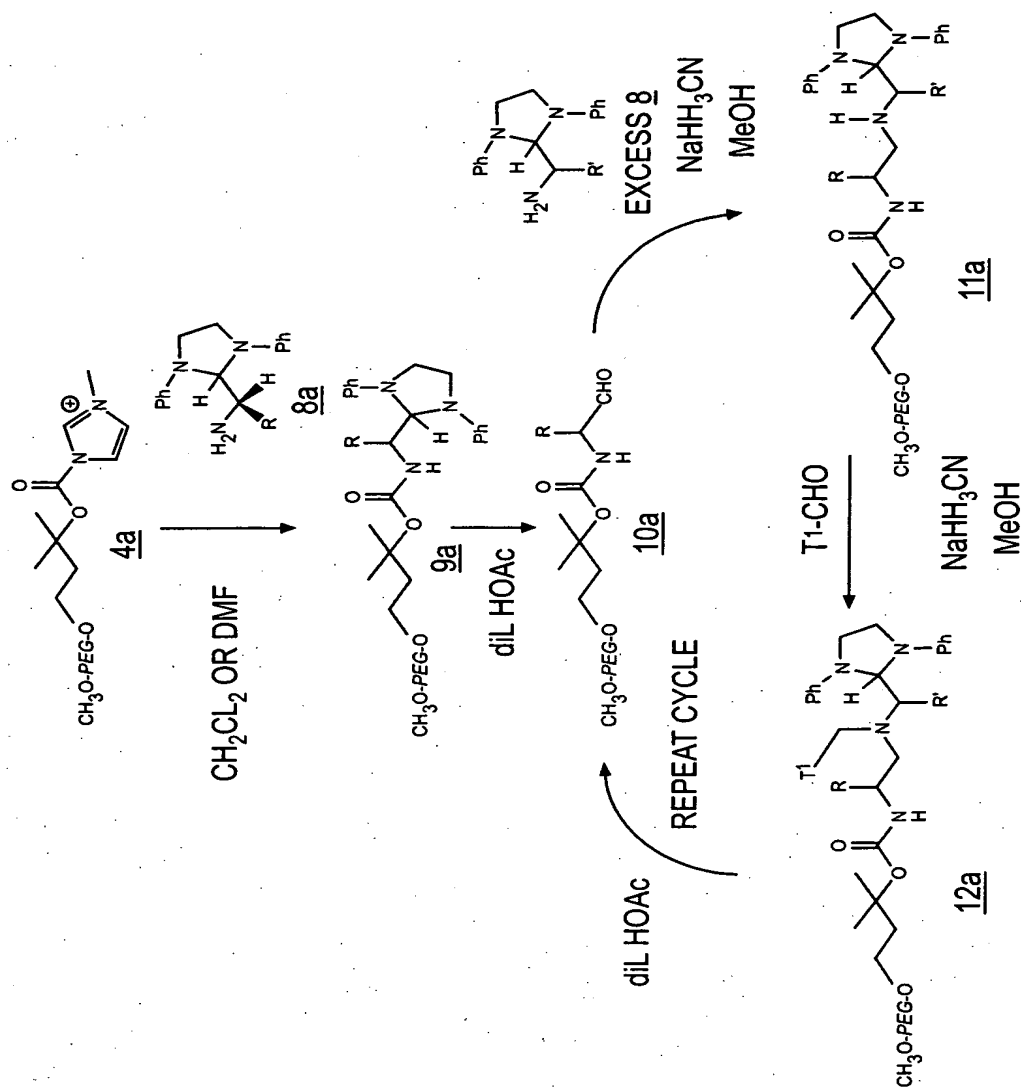


FIG. 36



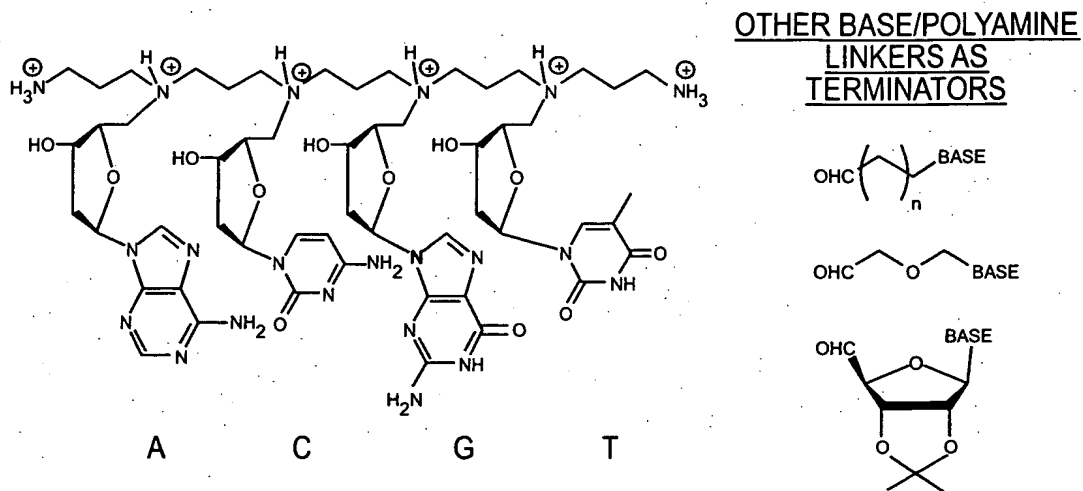


FIG. 38

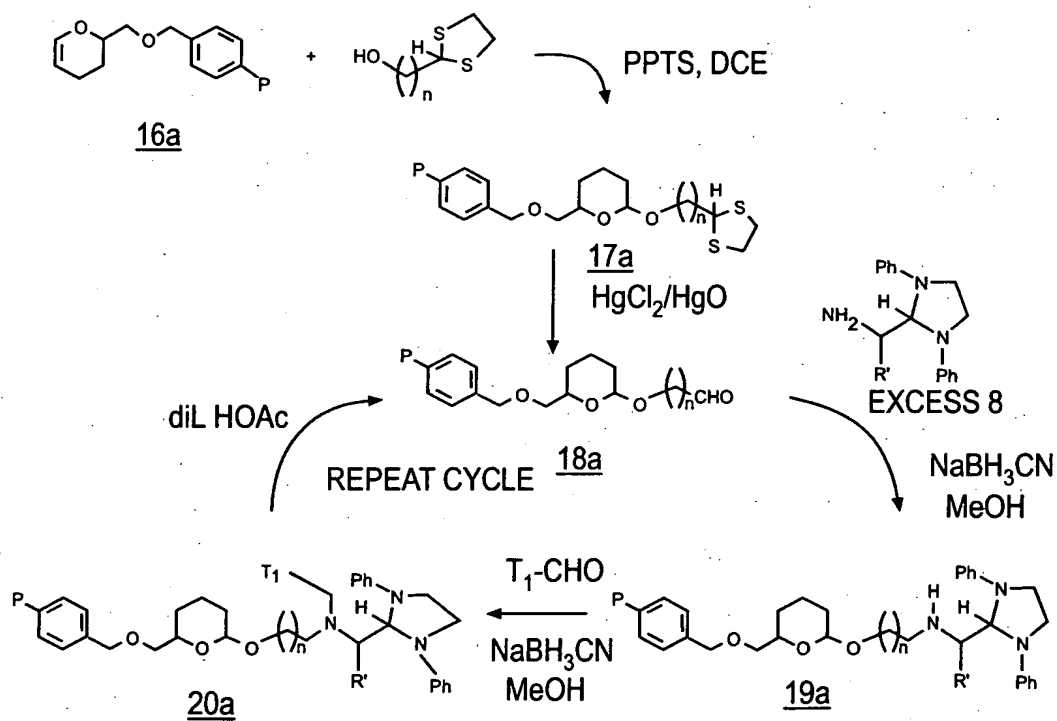


FIG. 39



REPLACEMENT SHEET

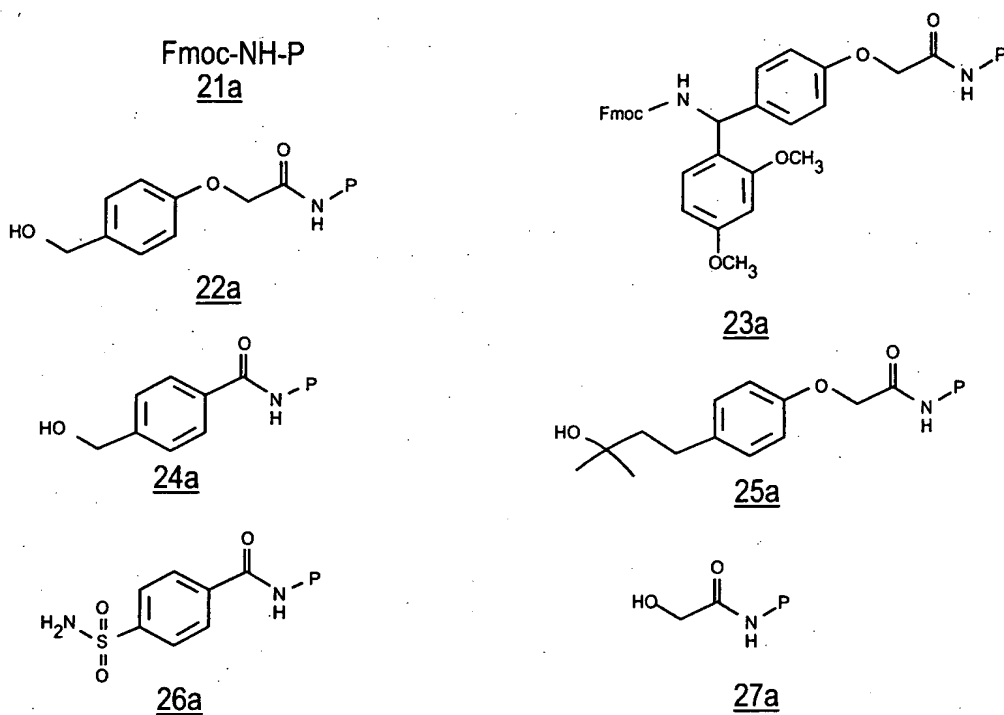


FIG. 40

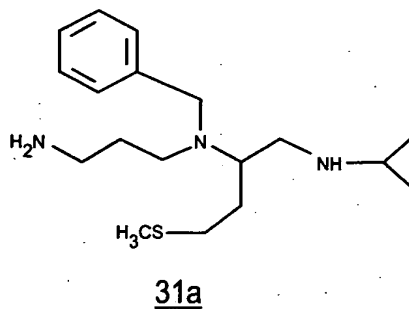
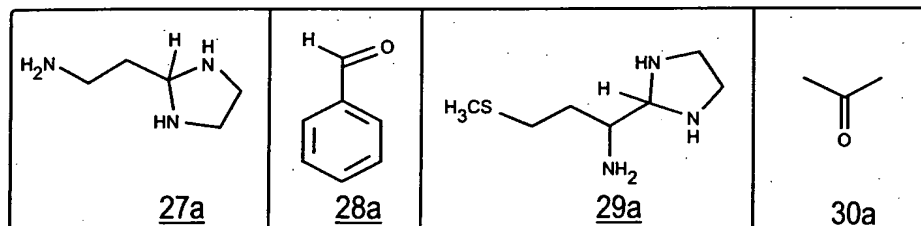
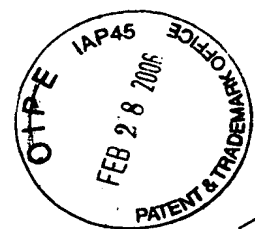
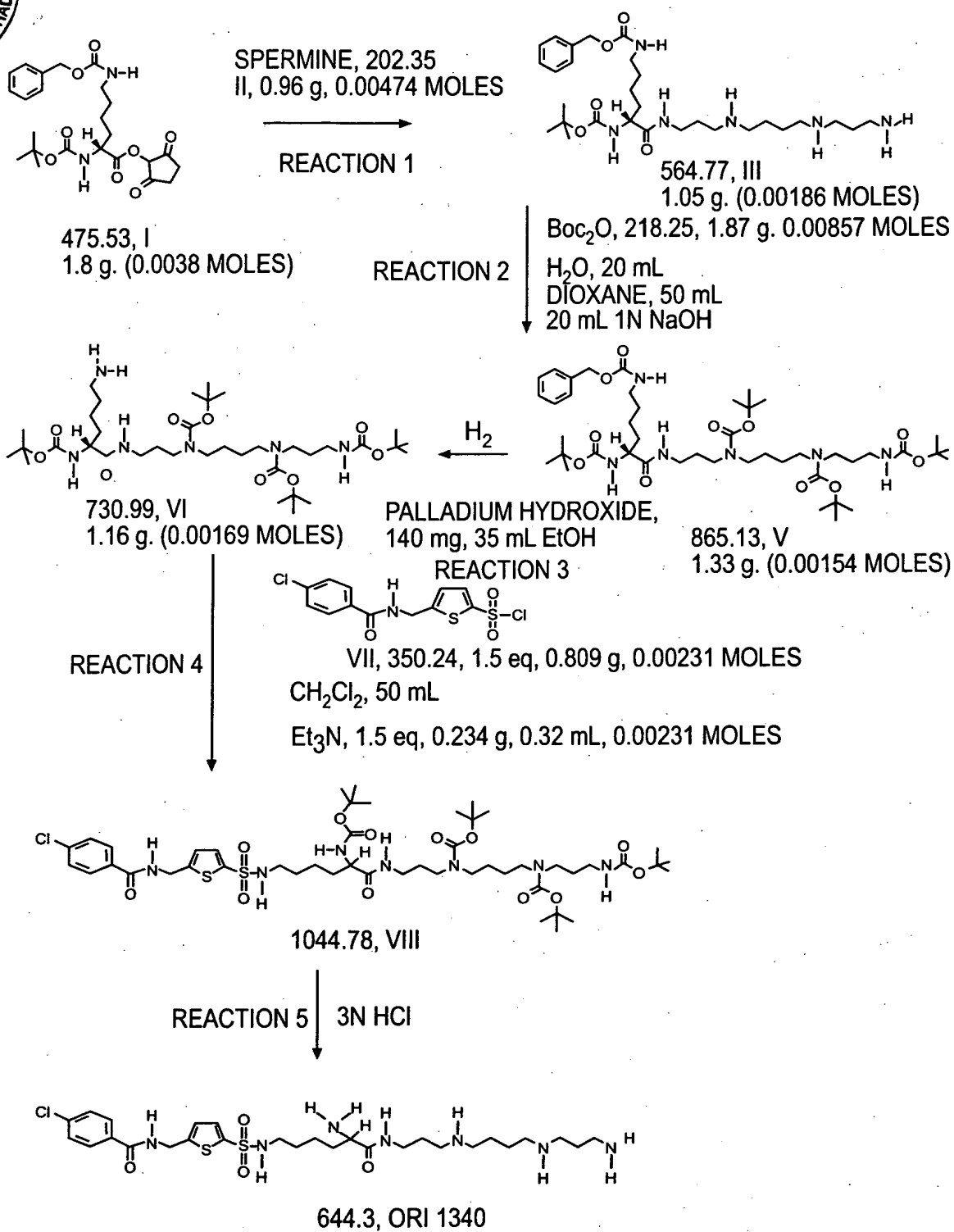
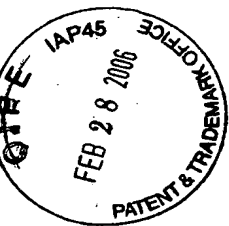


FIG. 41



REPLACEMENT SHEET

**FIG. 42**



REPLACEMENT SHEET

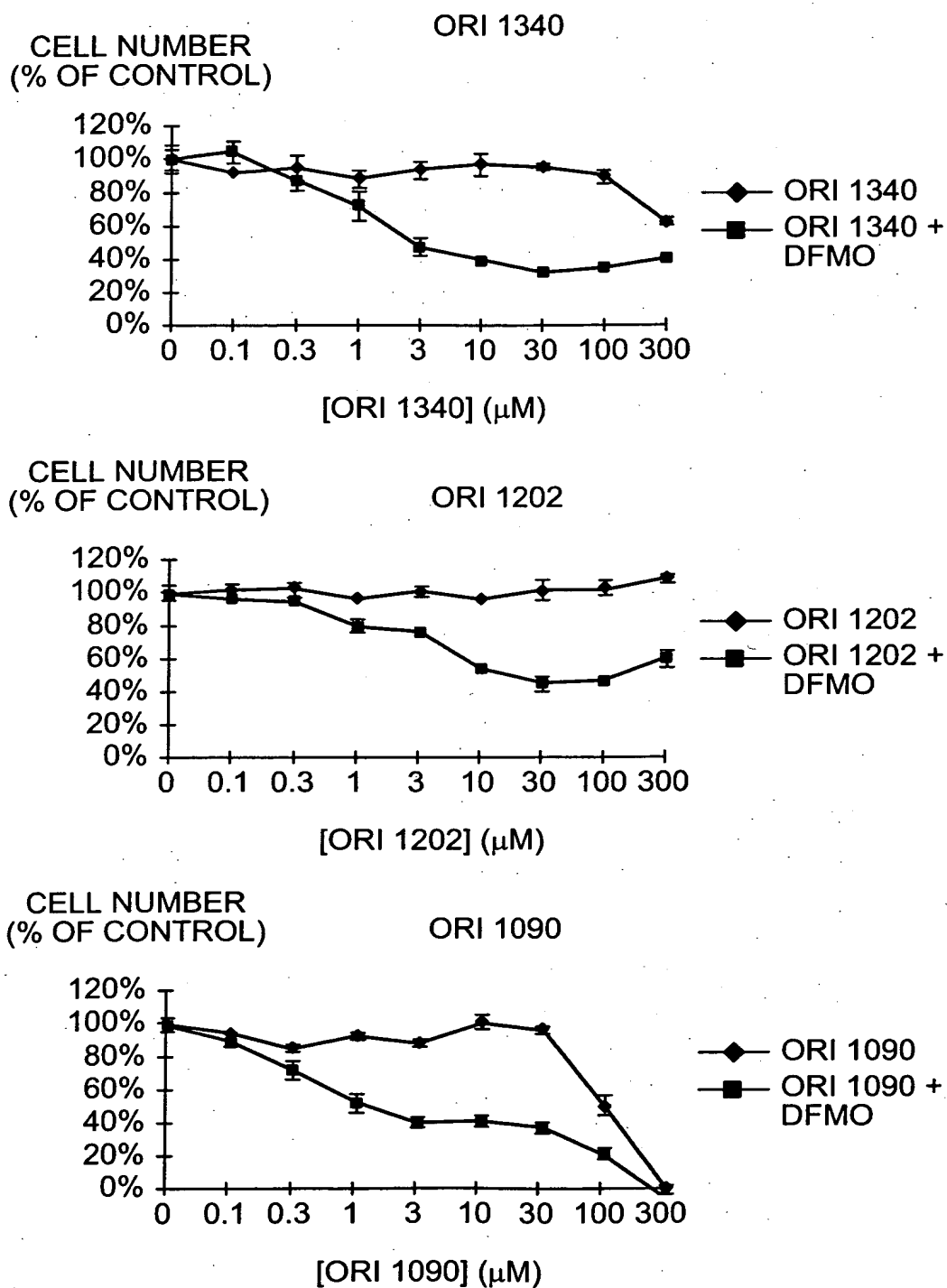
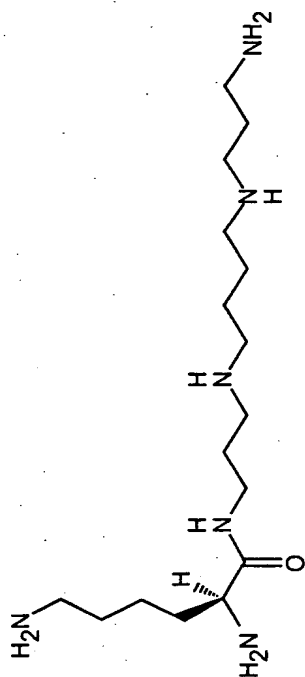
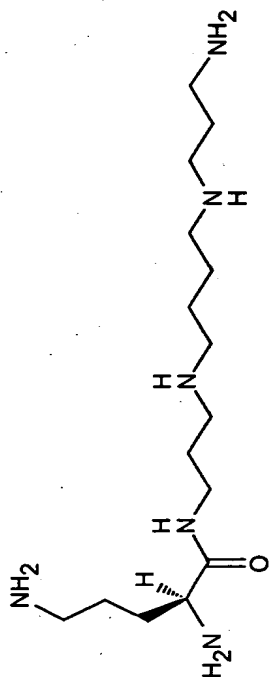


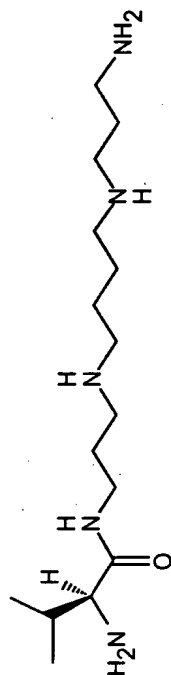
FIG. 43



ORI 1202
L-LYS-SPM



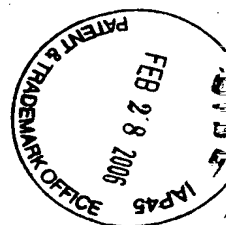
ORI 1224
L-ORN-SPM

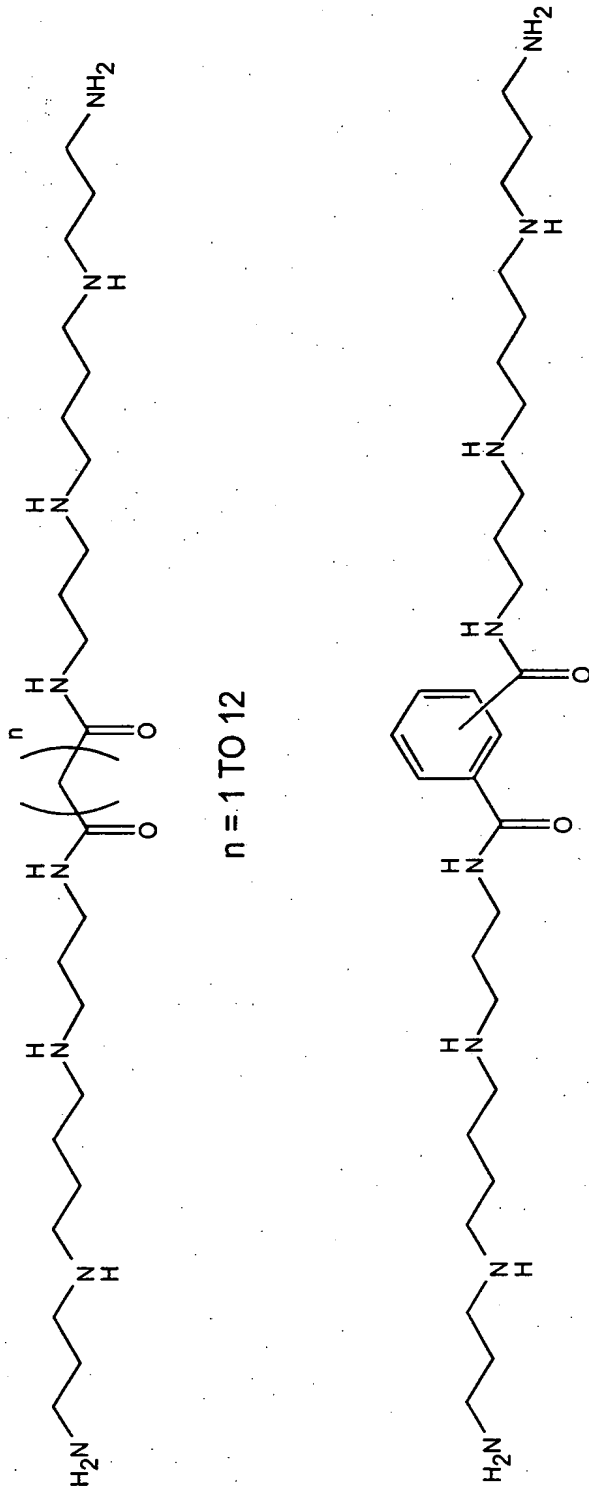


ORI 1157
L-VAL-SPM

PREFERRED NATURAL AND NON NATURAL AMINO ACID AMIDES OF SPERMINE.

FIG. 44a



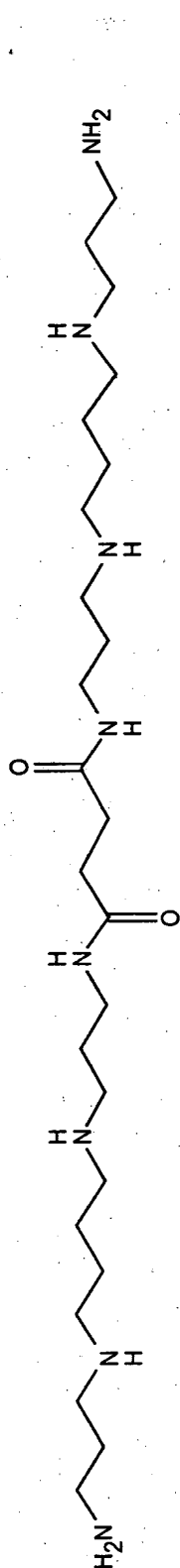


ORTHO, META AND PARA AROMATIC SUBSTITUTION

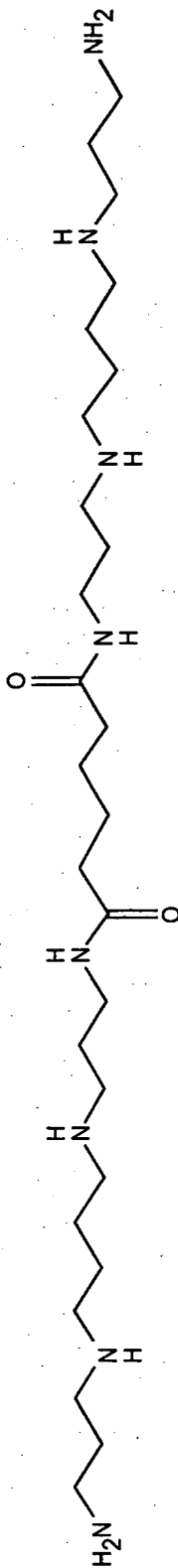
GENERAL STRUCTURE OF BIS-AMIDE DIMERS OF SPERMINE LINKED BY
AN ALIPHATIC OR AROMATIC DI-ACID CHAIN.

FIG. 44b

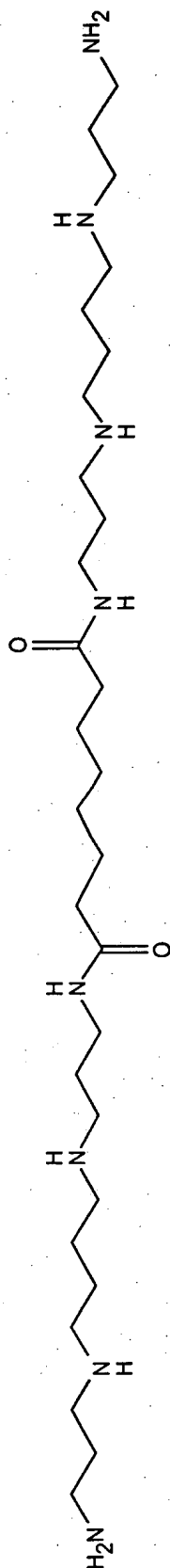




COMPOUND ID 1236



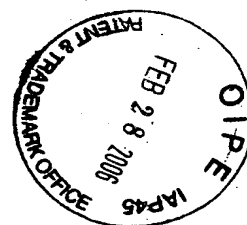
COMPOUND ID 1286

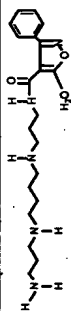
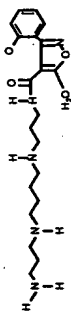
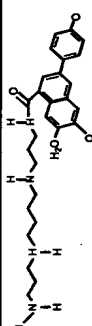
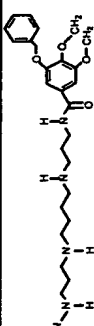
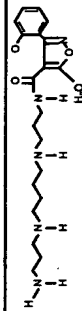
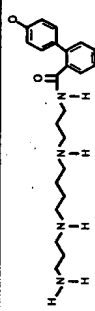
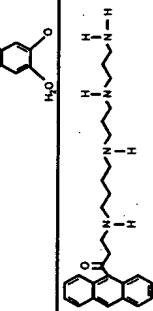
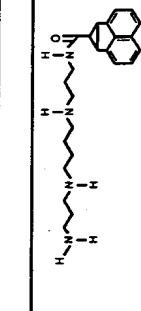
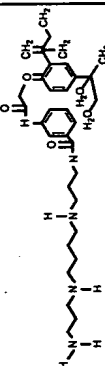


COMPOUND ID 1289

PREFERRED LINKED BIS-AMIDE DIMERS OF SPERMINE.

FIG. 44c



N1-MONOSUBSTITUTED POLYAMINES: AMIDES, NO LINKER							
ID	MOL WEIGHT	STRUCTURE	TRANSPORT>CELL LINE	Ki	GROWTH INHIBITION>CELL LINE	HALF EFFECT DRUG DFMO	IC50
1032	387.5295		MDA	0.19	MDA	3.58	>300
1033	421.9745		MDA	0.083			
1035	516.5189		MDA	1.0	MDA		>300
1037	472.6331		MDA	0.28	MDA		50
1038	407.9474		MDA	0.084	MDA		100
1039	502.4918		MDA	>10	MDA		>300
1043	407.5635		MDA	>10	MDA		30
1053	394.5648		MDA	0.344*	MDA	22.3	200
1072	595.8762		MDA	0.4			
			MDA	0.54	MDA		260
			mda	>1			

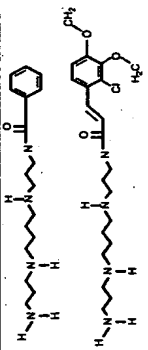
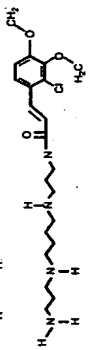
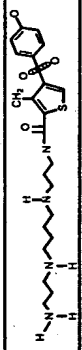
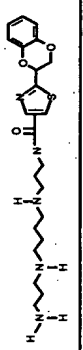
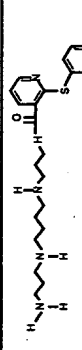
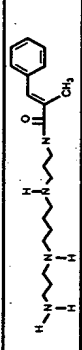
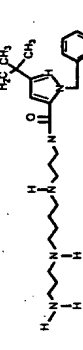
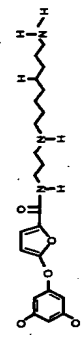
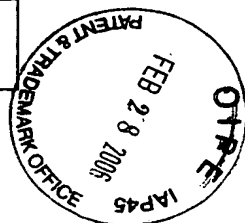
1073	306.4549		MDA		>10	mda	150		>300
1076	426.9911		MDA		0.116	mda	28.1		150
1077	501.1143		MDA		0.165*				
			MDA		0.11*	mda	2.46		56
1078	447.604		MDA		0.037	mda			19
			MDA		0.19*				19.4
						pc-3			24.4
						caco-2			6.9
1079	429.6323		MDA		0.594*	pc-3			83
1080	346.5202		MDA		0.062*	mda	7.4		78
						mda			190
1081	442.6531		MDA		0.086				
			MDA		0.297*	mda			26
						pc-3			5.5
						caco-2			23.0
						cem			1.7
1104	457.4043		MDA		0.12	mda			18
						pc-3			20.2
						caco-2			36.2
						cem			4.5

FIG. 45a (CONT. 1)



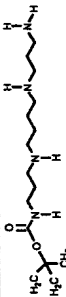
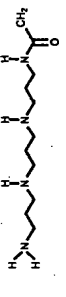
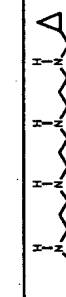
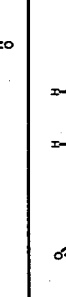
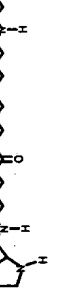


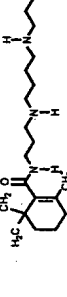
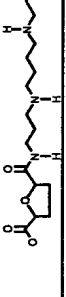



1163	302.4638		MDA	0.083			
1166	230.36				mda		>100
1167	256.3943				H157		>100
					mda		>100
1169	412.62		MDA	0.0252	h157 mda	>300	>100 >300
1208	308.47				pc-3	20.1	>300
1210	352.57						
1211	341.41						
1213	328.4829						
1214	325.46						
1215	284.45						
1216	313.49						

FIG. 45a (CONT. 2)



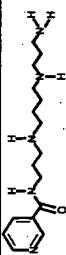
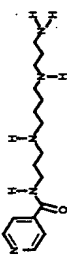
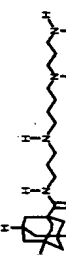
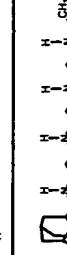
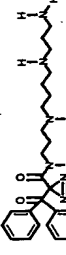
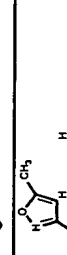
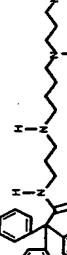
1217	307.44								
1218	307.4424								
1235	364.5792		MDA	1.14					
1240	378.6062				mda	>300	>300	>300	
					pc-3	>300	>300	>300	
1249	470.5594								
1251	392.5053		MDA	>1					
			MDA						
1347	472.6795								

FIG. 45a (CONT. 3)



FIG. 45b



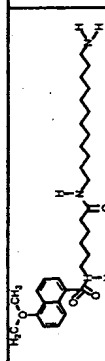
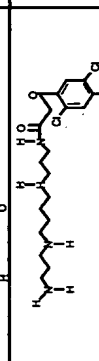
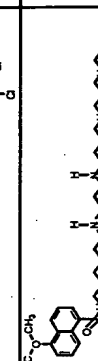
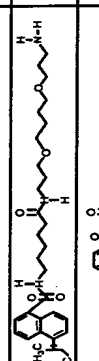
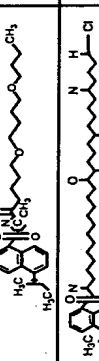
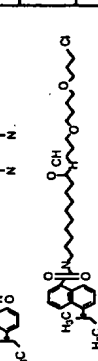

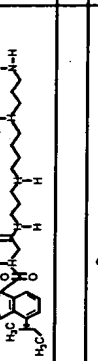
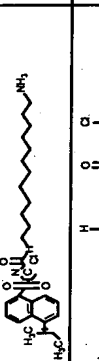
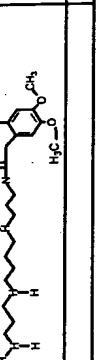
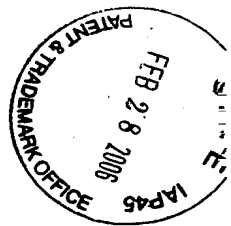
1059	546.822		MDA		6.5°	mda			70
1060	439.8164		MDA		0.099	mda	>300		>300
1061	576.8513		MDA		0.00895	mda	<3		360
			MDA		0.0942				
			MDA		41.2 nM	mda	9.81		560
			MDA		57.8 nM				
1063	550.7666		MDA		88°	mda			18
1064	510.7013		MDA		>30	mda	>100		>100
1065	632.9597		MDA		0.76	mda	>30		>30
1066	650.9722		MDA		19.2°	mda			27
						pc-3			8.7
						caco-2			>30
						cem			2.9
1067	492.6888		MDA		0.070°	mda	>30		>30
			MDA		0.43				
1068	506.7567		MDA		>30	mda	>30		>30
1069	459.431		mda		>1				
			MDA		0.74				

FIG. 45b (CONT. 1)



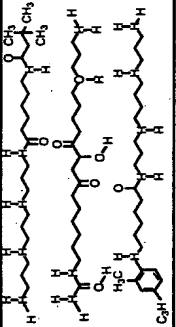
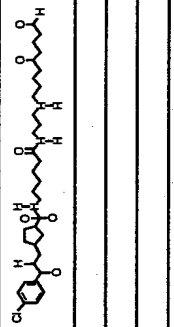
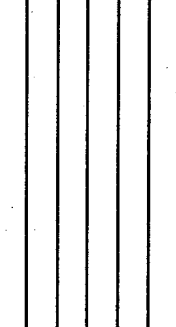
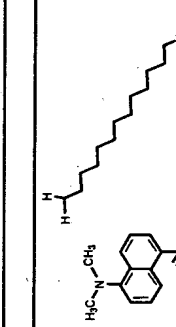
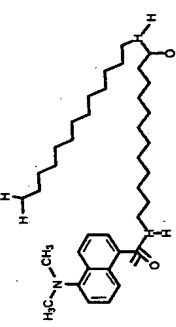
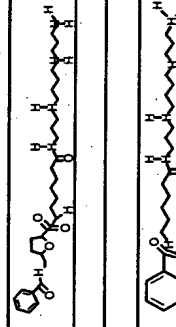
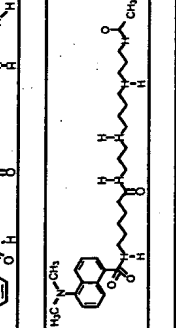

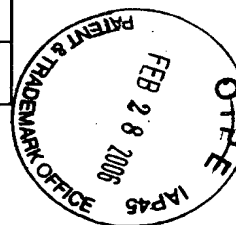
1083	401.5974					mda				>100
1085	373.5025				81.3	mda				>300
1086	481.6				2.2	mda				
1090	629.2897				0.0147	mda		0.960		300
					0.00997	MDA				
					0.070*	PC-3				
					0.01324	MDA				
					0.0252	MCF-7				
					0.013*	CaCo				
					0.022*	MDA				
					13.3-15.7 nM	MDA		1.54		>300
					0.0216 Pre-	MDA				
					0.0273	MDA				
					0.0812	HT-29				
					0.016	Du145				
1093	630.9845				>30	mda				
					19.2*					
1096	594.8446				0.094*	MDA		26.5		190
					0.0397	MDA				
					0.117	MDA				
1097	455.6678				0.0817	MDA		5.24		1200
								5.52		1200
1098	590.8348				2.1	MDA		263		>1000

FIG. 45b (CONT. 2)



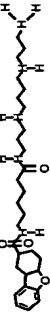
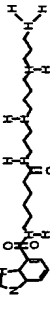

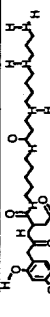
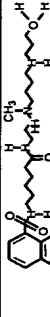
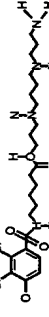
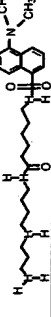

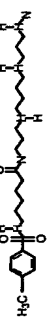

1100	545.75		MDA	0.0195*	mda	0.588	180
			MDA	0.00485			
			PC-3	0.0164			
			MDA	0.0105*			
			MCF-7	0.0196			
			CaCo	0.00663			
1101	513.7292		MDA	0.0793	pc-3	3.0	>300
					mda	6.17	>300
1107	314.5186		MDA	0.182	mda		63
1111	565.7189		MDA	0.19			
1113	564.8402		MDA	0.0167	mda	1.44	380
1114	559.0029		MDA	0.073	pc-3	1.43	320
					mda	1.59	>300
1115	491.7012						
					pc-3		>300
					mda	315	>300
1116	491.7012				pc-3		>300
					mda	315	>300
1119	469.6949		MDA	0.0568*	pc-3	5.1	>10
					mda	11.5	>10
1120	415.6245		MDA	0.0687*			

FIG. 45b (CONT. 3)

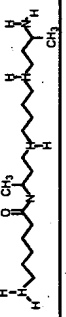

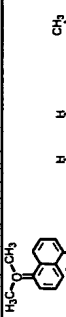
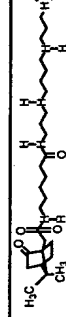
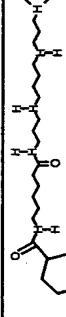
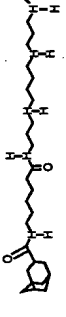
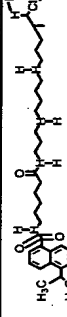
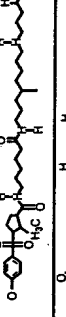
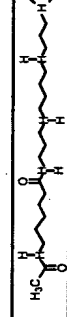


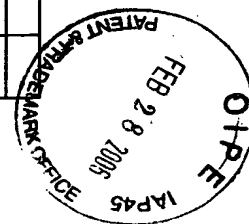
1122	343.5604		MDA	0.248			
			MDA	0.397			
1122	657.3438		MDA	0.012	MDA	5.20	255
			MDA	0.0136	PC-3	1.23	530
			PC-3	0.038			
			Du145	0.0985			
1124	576.8513		MDA	0.0178	mda	13.2	>300
			MDA	0.0466			
1129	529.7915		MDA	0.17*	mda	68.2	>300
					pc-3	71.3	>300
1135	425.6633		MDA	0.167*	pc-3	29.2	>300
1136	477.7398		MDA	0.0446*	mda	66.5	>100
			MDA	0.0344	mda	9.68	>1000
1149	387.5703		MDA	0.136*	pc-3	9.23	>1000
					mda	>100	>100
1152	490.8377		MDA	0.0903	pc-3		99
			MDA	0.085	mda		>100
1156	614.275		MDA	0.00955	mda	1.55	>300
					pc-3	2.56	>300
1160	393.5961		MDA	0.0564*	mda	45.8	>300
					pc-3		64
1161	357.5438		MDA	>0.3	mda	>300	>300
			MDA	>1	pc-3	>300	>300

FIG. 45b (CONT. 4)



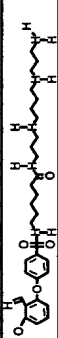

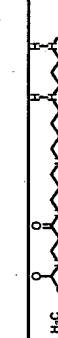

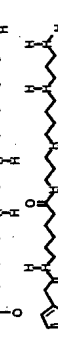
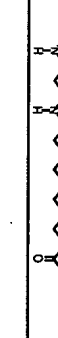
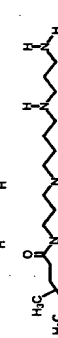



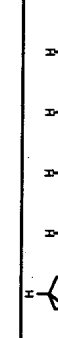
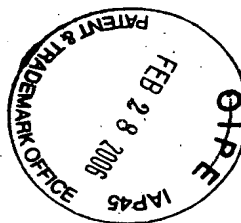
1165	607.2209		MDA	0.0143	mda	<3	199
1174	459.66		MDA	0.3	pc-3	<3	188
1175	373.5432		MDA	0.061	mda	>300	>300
1179	369.555		MDA	1>uM	pc-3	>300	>300
1180	439.6684		MDA	0.0265	mda	>300	>300
1203	244.3832				pc-3	>300	>300
1209	359.52		MDA	>1	mda	62	277
1233	587.2084		MDA	0.0355*	pc-3	72	227
1234	506.7159		MDA	0.0185*	mda	1.9	>300
1238	364.5792		MDA	0.0565	pc-3	0.56	>300
1239	392.6333		MDA	>1	mda	1.6	>300
					pc-3	0.87	>300
					mda	235	235
					pc-3		208
					mda		195
					pc-3		173

FIG. 45b (CONT. 5)



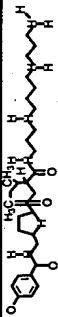





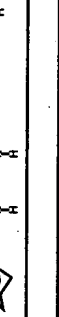

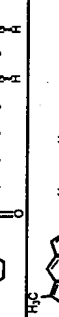
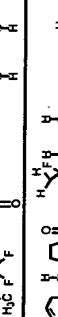
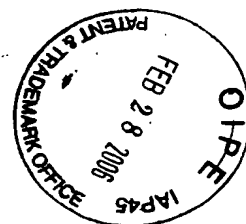
1241	615.2626		MDA	0.0262		
1243	428.6448					
1244	359.5189		MDA	0.46		
1245	313.4495					
1254	505.666		MDA	0.0577		
1281	392.6333		MDA	>1		
1298	413.5865					
1305	348.5361					
1315	477.4338					
1340	644.3043					

FIG. 45b (CONT. 6)







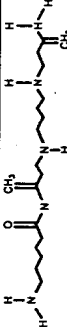
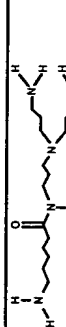
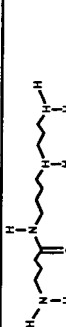

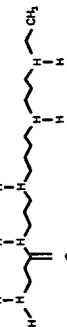
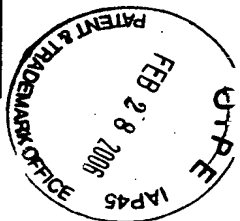
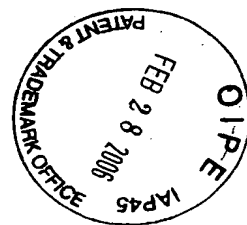
N1-MONOSUBSTITUTED POLYAMINES: AMIDES, AMINOALKYL		TRANSPORT>CELL LINE	Ki	GROWTH INHIBITION>CELL LINE	HALF EFFECT DRUG DFMO	IC50
ID	MOL WEIGHT	STRUCTURE				
1091	301.4791			mda		>100
1094	315.5062		0.075	mda	18	>300
			0.117	mda	51.5	>1000
			0.040	mda		
			0.028-	mda	54	>300
			0.043	MDA		
1110	244.3832		0.162	MDA		
			0.190	MDA		
1121	343.5604		0.64	MDA	>300	>300
			0.5	PC-3		>300
1122	343.5604		0.248			
			0.397	MDA		
1126	301.4791		>10	mda		>100
1150	287.452		0.043*	mda		>100
1177	273.4249		0.0756*	mda	>300	>300
			0.0636	pc-3	<3	>300
			0.147	MDA	>100	>100
				PC-3	2.85	>100
1197	301.4791		0.39	MDA		>300
				PC-3	>300	460

FIG. 45c



1198	301.4791		MDA	0.424	MDA	>300	>300
					PC-3	299	>300

FIG. 45c (CONT.)



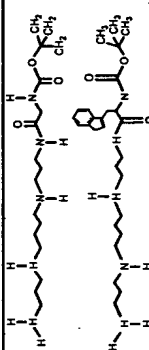
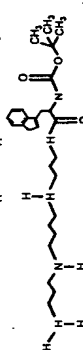
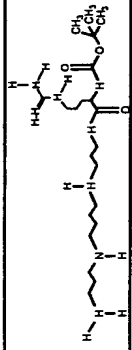
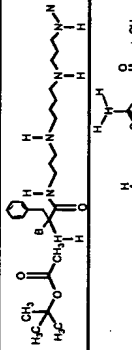
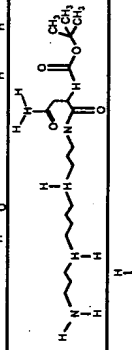
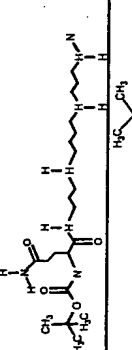
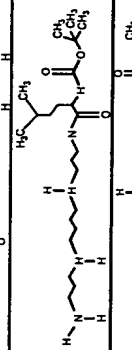
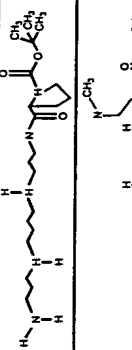
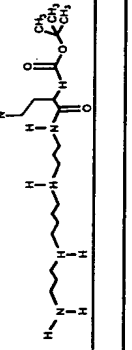
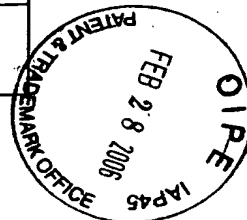
N1-MONOSUBSTITUTED POLYAMINES: AMIDES, PROTECTED AMINO ACID HEAD GROUP		TRANSPORT>CELL LINE		Ki	GROWTH INHIBITION>CELL LINE	HALF EFFECT DRUG DFMO	IC50
ID	MOL WEIGHT	STRUCTURE	MDA				
1117	359.5161		MDA	0.232*	mda		>100
1118	488.679				pc-3	22.64	>300
1127	458.6526				mda	50.4	>100
1147	481.7281		MDA	0.098*	mda	>100	>100
1151	416.5685		MDA	>1			
1153	430.5955		mda	0.156			
1155	401.5974		MDA	0.258			
1158	399.5815		MDA	0.183			
1162	433.6614		MDA	0.0913			
			MDA	0.083			

FIG. 45d



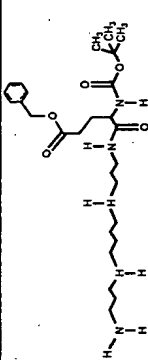
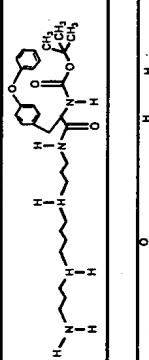
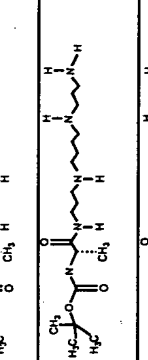
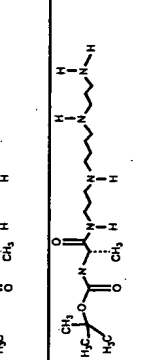
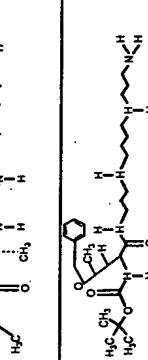


1170 521.7061		MDA	>1	mda	>300	>300
				pc-3	>300	>300
1172 555.7673		MDA	37.1	mda	20	20
				pc-3		
1176 373.5432		MDA	0.0418	mda	>300	>300
				pc-3	14.0	>300
1176 373.5432		MDA	0.0418	mda	>300	>300
				pc-3	14.0	>300
1176 373.5432		MDA	0.0418	mda	>300	>300
				pc-3	14.0	>300
1176 373.5432		MDA	0.0418	mda	>300	>300
				pc-3	14.0	>300
1176 373.5432		MDA	0.0418	mda	>300	>300
				pc-3	14.0	>300
1189 493.6956		MDA	0.465	MDA	52	>300
				PC-3	100	>300

FIG. 45d (CONT.1)



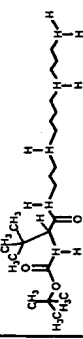
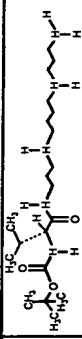
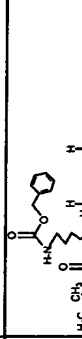
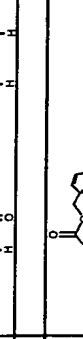
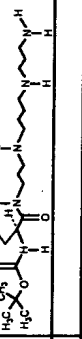
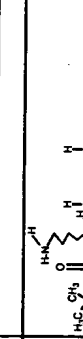
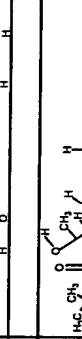
1193 415.6245		MDA		0.265	pc-3	>300	>300
1195 401.5974		MDA		0.271	PC-3	91.9	>300
					MDA	37.9	>300
1199 564.775		MDA		0.060*	PC-3	70.9	>300
					MDA	15.5	>300
1200 464.6567		MDA		0.039	PC-3	9.20	>300
					MDA	29.8	>300
1201 430.6392		MDA		0.191	MDA	41.3	>300
					PC-3	7.87	>300
					PC-3	8.51	>300
					MDA	36.9	>300
1205 403.5697					pc-3	16.9	430
					mda	100	>300
1206 393.5773		MDA		0.1094	pc-3	>300	>300
					mda	19	>300

FIG. 45d (CONT.2)



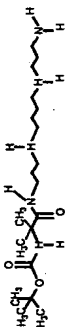
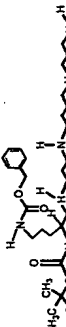
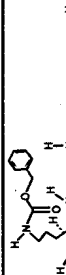
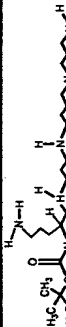
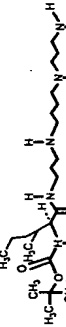
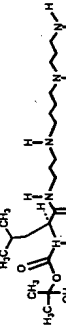
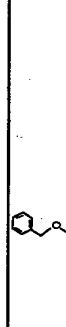
					pc-3	67	>300
1219 387.5703							
1221 550.7479							
1222 450.6296							
1223 416.6121							
1229 415.6245							
1231 415.6245							
1259 760.9417							

FIG. 45d (CONT.3)



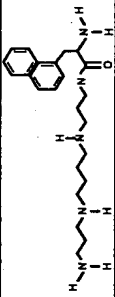
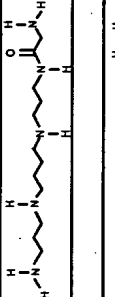
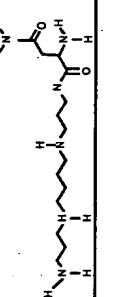
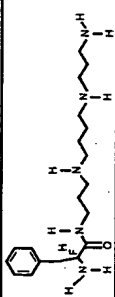
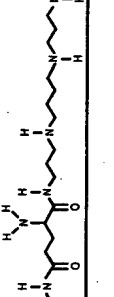

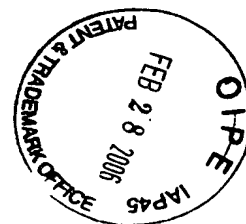
N1-MONOSUBSTITUTED POLYAMINES: AMIDES, NATURAL ALPHA-AMINO ACID HEAD GROUP		TRANSPORT>CELL LINE		Ki	GROWTH INHIBITION>CELL LINE		HALF EFFECT DRUG DFMO	IC50
ID	MOL WEIGHT	STRUCTURE	MDA	0.073	mda	mda	5.3	>300
1095	388.5607							
			MDA	0.011-	pc-3		8.44	560
							14.05	>1000
							30.0	>300
1125	259.3978		MDA	0.07	mda			>100
			MDA	0.1036*				
1131	316.4501		MDA		pc-3		57.0	>300
							81.97	>1000
							113	>300
							57	>300
1148	349.5237		MDA	0.214*	mda			>100
1154	330.4772		MDA	0.047	mda		>300	>300
1157	301.4791		MDA	0.160*	pc-3		>300	>300
							5.58	>300
			MDA	0.0392	pc-3		14.35	>300
			PC-3	0.149	mda		26.42	>300
			Du145	0.109	PC-3		3.86	>300
			MDA	0.0514	pc-3		5.28	>300
			Du145	0.0467				

FIG. 45e




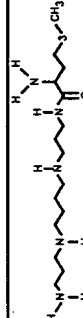
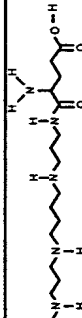
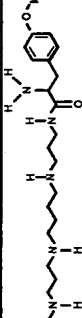
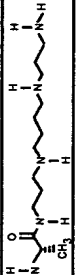
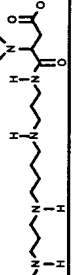
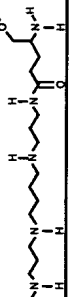
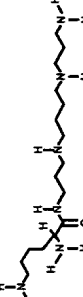
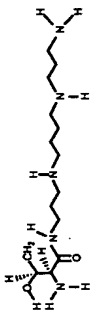
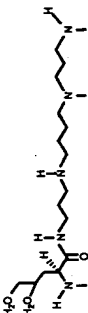
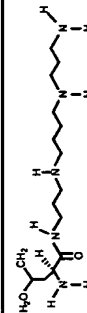
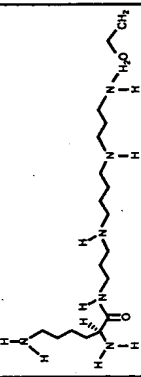
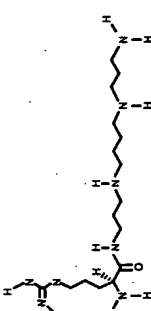
1159	299.4632		MDA	0.0255	mda	92.8	>300
			MDA	0.0499	pc-3	16.5	81
			MDA	0.215-50	MDA	>100	>100
					pc-3	12.1	>100
1164	333.5431		MDA	0.0335	mda	>300	>300
1171	331.462		MDA	0.0765	pc-3	>300	>300
					MDA	300	>300
1173	365.5231		MDA	0.13	PC-3	185	>300
			MDA	0.0768	MDA	94.6	>300
1178	273.4249		MDA	0.0526*	PC-3	42.7	>300
					mda	>300	>300
1186	317.4349		MDA	0.167	pc-3	>300	>300
					MDA	300	>300
1187	289.4243		MDA	0.38	PC-3	213	>300
			MDA	0.0453	MDA	25.5	>300
1202	330.5209		MDA	0.0295	PC-3	20.8	>300
					MDA	4.75	>300
			PC3	0.748	PC-3	5.30	>300
			MDA	0.147	pc-3	1.7	
			MDA	0.032*			
			MDA	0.05			
			HT-29	0.185			

FIG. 45e (CONT.2)



1207	303.4514		MDA	0.13	mda	6.5	>300
1228	315.5062		MDA	0.124	pc-3 mda	62 9.1	>300 >300
1230	315.5062		MDA	0.0323	pc-3 mda	4.0 >300	>300 >300
1237	374.6181		MDA	0.113	pc-3 mda	6.2 >300	>300 >300
1260	358.5343		MDA	0.099	pc-3 mda	>300 6.80	>300 >100
					pc-3	3.04	>100

N1-MONOSUBSTITUTED POLYAMINES: AMIDES, NON-NATURAL ALPHA-AMINO ACID HEAD GROUP				TRANSPORT>CELL LINE		KI		GROWTH INHIBITION>CELL LINE		HALF EFFECT DRUG DFMO		IC50	
ID	MOL WEIGHT	STRUCTURE		MDA		MDA		MDA					
1188	313.4466			MDA		>1 μ M		MDA				320	
1194	315.5062			MDA		10.6		PC-3				214	
				MDA		0.0727*		MDA		5.32		>300	
								PC-3		7.51		>300	
								MDA		16.19		>300	
								PC-3		1.82		>300	
1196	301.4791			MDA		0.0483		MDA		9.03		>300	
1220	287.452			MDA		0.16		PC-3		8.01		>300	
								mda		8.0		>300	
1224	316.4938			MDA		0.0432		pc-3		2.4		>300	
								pc-3		3.0		>300	
1227	355.5715			MDA		0.0515		mda		4.37		>300	
				MDA		0.241		mda		7.8		>30	
1309	388.5607							pc-3		0.95		>30	

FIG. 45f



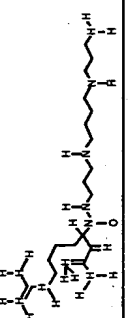
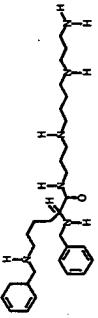
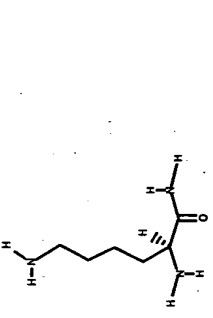
N1-MONOSUBSTITUTED POLYAMINES: AMIDES, AMINO ACID DERIVATIVE HEAD GROUP		TRANSPORT>CELL LINE		GROWTH INHIBITION>CELL LINE		HALF EFFECT DRUG DFMO		IC50	
ID	MOL WEIGHT STRUCTURE	Ki							
1304	418.6337 			mda		85		>300	
1310	510.7726 			pc-3 mda		15.0 4.2		244.8	
1355	145.206 			pc-3 mda		1.7		>10000	

FIG. 45g



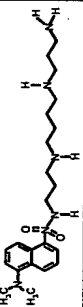
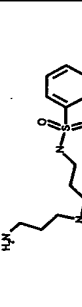
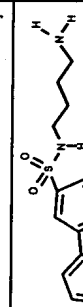

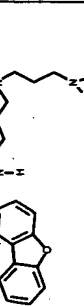
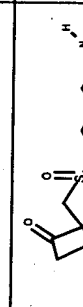
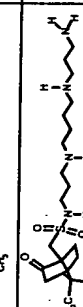
N1-MONOSUBSTITUTED POLYAMINES: SULFONAMIDES		TRANSPORT-CELL LINE		GROWTH INHIBITION-CELL LINE		HALF EFFECT DRUG DFMO	
ID	MOL WEIGHT	STRUCTURE	Ki	MDA	MDA	IC50	IC50
1001	435.6365		.039	MDA	MDA	20	600
1003	421.6094		.08	A172	A172	>300	
1005	318.3975		23	A172	A172	100uM	28 uM
1006	446.6164		1.46	mda	MDA	40 uM	20
1007	302.4389		60	A172	MDA	50	>300
1008	416.6308		>10	MDA	MDA	>300	
1010	442.6282		0.110	MDA	MDA	1.7	20
			0.082	A172	MDA	1.05	18

FIG. 45h



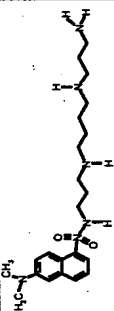
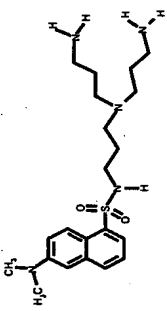
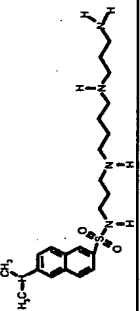
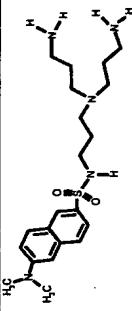

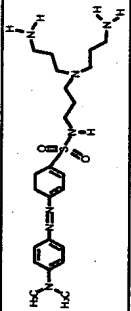

1011	435.6365		MDA	0.066°	MDA	6.0	50
1012	421.6094		MDA	>10	MDA	<30	50
1013	435.6365		MDA	3.5	MDA	13.4	50
1014	421.6094		A172	1.34	MDA		100
1015	489.6881		MDA	2.9	MDA		15
			A172	1.6	DC-3		>30
					CAOO-2		18.2
					cem		>30
1016	475.661		MDA	>10	MDA		13
1017	392.5676		MDA	.187	MDA	14.2	50
			A172	.24			

FIG. 45h (CONT.1)



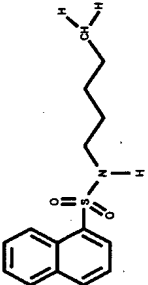
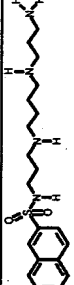
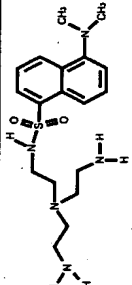
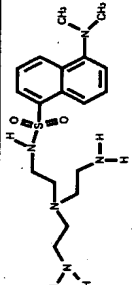
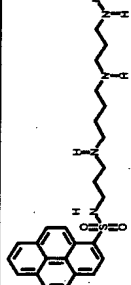
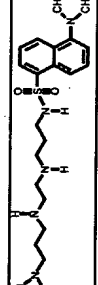
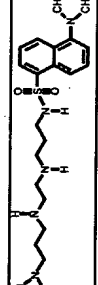

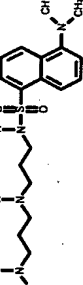
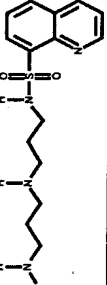

1018	278.3758		mda	>30	MDA		120
1019	392.5676		MDA	0.2*	MDA	7.5	50
1020	379.5281		A172	0.37	MDA	4.4	50
1020	379.5281		MDA	>30	MDA		110
1023	466.6505		MDA	.091	MDA		22
1024	407.5823		A172	.075			
1024	407.5823		MDA	5.4	MDA		50
1025	365.501		MDA	4.3	MDA		>300
1026	364.5135		MDA	2.7	MDA		50
1027	322.4322		MDA	>10	MDA		>300
1028	421.6094		MDA	11.4	MDA		50

FIG. 45h (CONT.2)



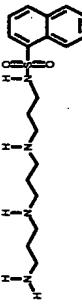
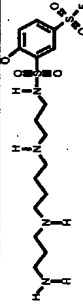

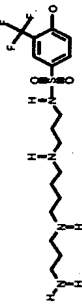
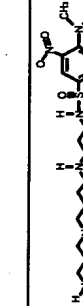
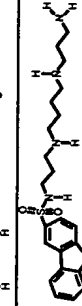
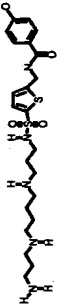
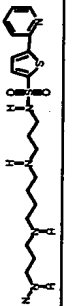
1029	379.5281		MDA	3.4	MDA		>300
1030	458.0054		MDA	0.08	MDA	125	>250
1031	393.5552		MDA	0.43	MDA	<10	>300
1034	444.9505		MDA	0.24	MDA	<3	50
1036	430.5735		MDA	0.84	mda	8.7	50
1041	432.5893		MDA	0.066	MDA	.95	>300
					pc-3		12
					caco-2		6.2
					cem		16.1
					mda	12.6	0.79
					pc-3		53.0
					mda		12.4
					pc-3		46.1
					MDA	3	6.5
1044	516.129		MDA	0.156*			180
			MDA	0.0582	mda	<3.0	190
			MDA	0.130			
			MDA	0.13			
1045	425.6192		MDA	0.228	MDA	13	180
			MDA	0.164	mda	7.3	140
			MDA	0.32			

FIG. 45h (CONT.3)




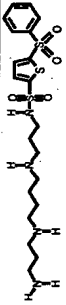
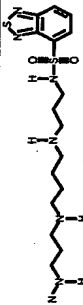
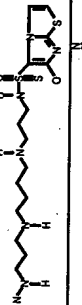


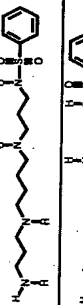
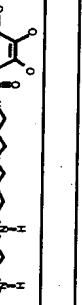
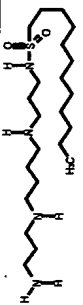
1046	472.6979		MDA	0.44	mda	6.92	58
			MDA	0.0677	pc-3		34.8
					caco-2		>30
					cem		8.9
1047	488.6944		MDA	0.375	mda	7.3	170
			MDA	0.177			
1048	400.5886		MDA	0.421	mda	26.7	>300
1049	423.0024		MDA	>3	mda		>300
1050	494.0602		MDA	0.108	MDA	2.26	140
			MDA	0.0537			
1051	481.684		MDA	0.28	mda	6.5	>300
			MDA	0.076			
1052	342.5071		MDA	0.16*	mda	30	>300
1054	445.8422		MDA	0.025	MDA	<3.0	50
			MDA	0.0829	mda	7.89	20
					pc-3		19.8
					caco-2		27.1
					cem		2.6
1057	434.7334		MDA	0.17	mda		100

FIG. 45h (CONT.4)



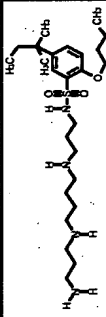
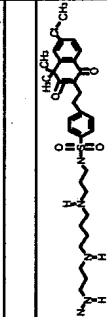


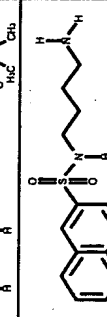
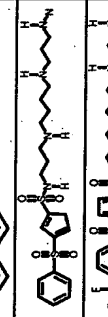
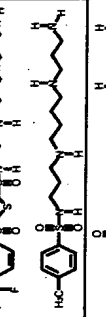
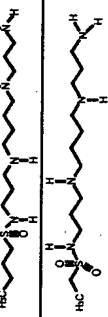



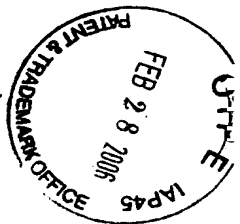
1058	484.7503		MDA	0.17*	mda		6
					pc-3		5.9
					caco-2		14.8
					cem		0.71
1070	587.7877		MDA	>10			
					mda		13
					pc-3		>30
					caco-2		>30
					cem		>30
1074	437.606		MDA	>30	MDA		
1075	433.6206		MDA	>100			
1082	412.6426		MDA	>3	mda		140
1088	278.3758		mda	5.4*			
1103	488.6944		MDA	0.067	mda	3.5	58
1105	557.6804		MDA	0.083	mda		44
1106	356.5342		MDA	0.094	mda		160
1108	322.5167		MDA	0.19	mda		150
1130	294.4625		MDA	0.22	mda	>300	>300

FIG. 45h (CONT.5)



1330	348.5329								
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FIG. 45h (CONT.6)



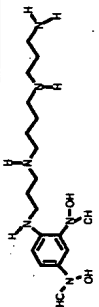
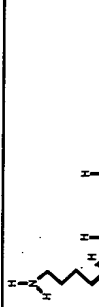
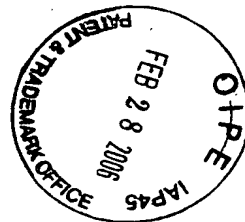
N1-MONOSUBSTITUTED POLYAMINES: N1-MONOSUBSTITUTED AMINES									
ID	MOL WEIGHT	STRUCTURE	TRANSPORT>CELL LINE	Ki	GROWTH INHIBITION>CELL LINE	HALF EFFECT DRUG DFMO	IC50		
1004	372.4712								
			MDA	2.2	MDA		5		
			A172	3					
1350	316.5374								

FIG. 45i



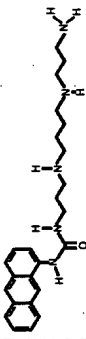
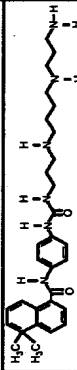
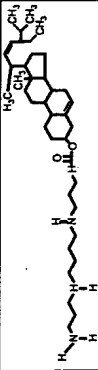
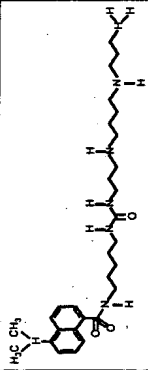
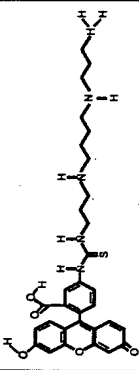
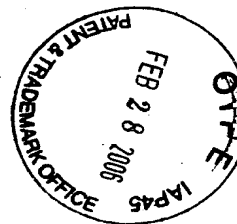
N1-MONOSUBSTITUTED POLYAMINES: OTHER		STRUCTURE		TRANSPORT>CELL LINE	Ki	GROWTH INHIBITION>CELL LINE	HALF EFFECT DRUG DFMO	IC50
ID	MOL. WEIGHT							
1021 (UREA)	421.5906			MDA	0.44	MDA	8.2	35
				A172	.04*			
1042 (UREA)	569.7752			MDA	1	MDA	14.8	100
1071	641.0454			MDA				
1109 (UREA)	563.8118			MDA	0.0674	pc-3	30	>100
				MDA	0.090	mda	95	>100
1295 (THIOUREA)	591.735			MDA	>3			

FIG. 45j



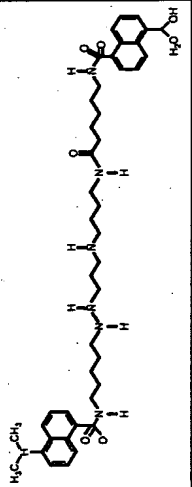
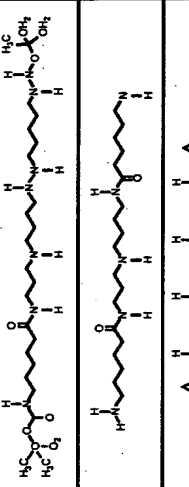
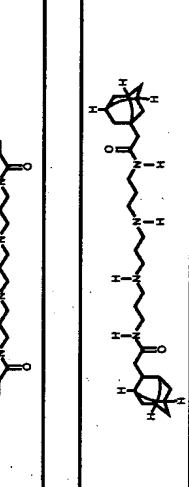
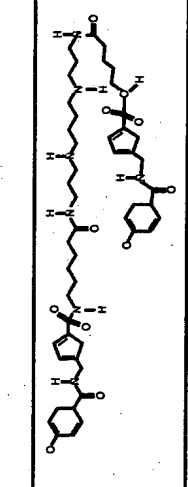
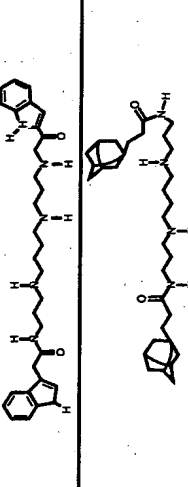
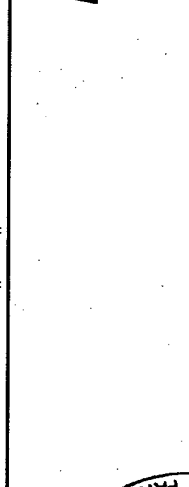

N1, N12-DISUBSTITUTED POLYAMINES: N1, N12-DIACYL POLYAMINE		STRUCTURE		TRANSPORT>CELL LINE	Ki	GROWTH INHIBITION>CELL LINE	HALF EFFECT DRUG DFMO	IC50
ID	MOL WEIGHT							
1099	895.2488			MDA	0.54	mda		64
1132	628.9035			MDA	11.6*			
1133				MDA	8.44*	MDA		
1168	324.4702					mda		>100
1242	554.867			MDA	7.4	h157 mda		>100 45.8
1250	1042.21			MDA	0.38	pc-3		20.5
1258	516.6923			MDA	0.44			
1282	582.9211					mda	15.0	59.2

FIG. 46a



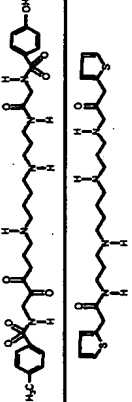






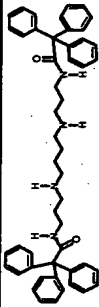
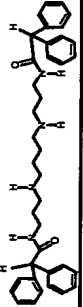
1300	624.8275		pc-3	10.3	120
1306	450.6699		mda		198.0
1331	594.7981		pc-3		42.83
			mda		>300
1333	494.7267		pc-3		>300
			mda		156.7
1335	743.0503		pc-3		83.6
			mda		195.5
1336	740.7132		pc-3		60.9
			mda		195.2
1337	490.6948		pc-3		199.5
			mda		64.1
1338	743.0135		pc-3		24.9
			mda		6.4
1339	590.8159		pc-3		6.4
			mda		185.5
			pc-3		183.5

FIG. 46a(CONT)



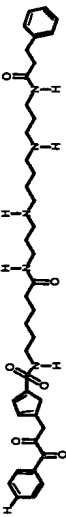
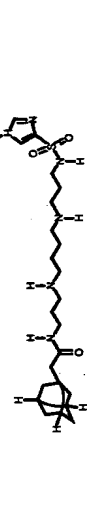
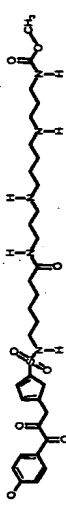
N1, N12-DISUBSTITUTED POLYAMINES: N1, N12-ACYLSULFONYLPOLYAMINES									
ID	MOL WEIGHT	STRUCTURE	TRANSPORT>CELL LINE	Ki	GROWTH INHIBITION>CELL LINE	HALF EFFECT DRUG DFM0	IC50		
1266	763.4255								
1276	522.7589		MDA	0.104					
1280	687.3267								

FIG. 46b



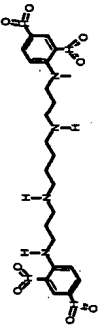
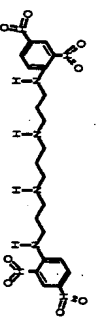
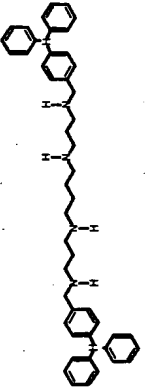
N1, N12-DISUBSTITUTED POLYAMINES: N1,N12-DIALKYLAMINEPOLYAMINES		STRUCTURE		TRANSPORT>CELL LINE	Ki	GROWTH INHIBITION>CELL LINE	HALF EFFECT DRUG D50	IC50
ID	MOL WEIGHT							
1247	534.53					mda		0.74
						pc-3		0.61
						mda		1.27
						pc-3		0.84
1279	520.5061					mda		21.3
						pc-3		33.2
1352	717.0217					mda		2.0
						pc-3		1.9

FIG. 46C



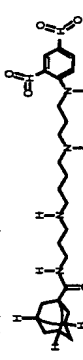
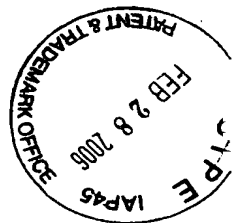
N1, N12-DISUBSTITUTED POLYAMINES: N1, N12-ACYLALKYLAMINEPOLYAMINE						
ID	MOL WEIGHT	STRUCTURE	TRANSPORT>CELL LINE	Ki	GROWTH INHIBITION>CELL LINE	HALF EFFECT DRUG DFMO
1270	544.7001				mda	161
					pc-3	104

FIG. 46d



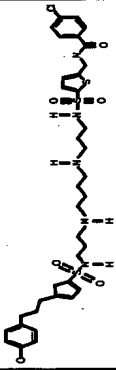

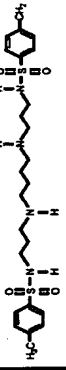


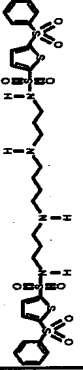

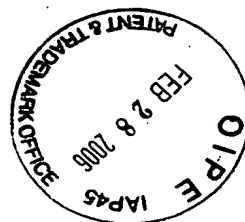
N1, N12-DISUBSTITUTED POLYAMINES: N1, N12-DISULFONYLPOLYAMINE		TRANSPORT>CELL LINE		GROWTH INHIBITION>CELL LINE		HALF EFFECT DRUG DFMO		IC50	
ID	MOL WEIGHT	STRUCTURE	MDA	Ki					
1278	829.91		MDA	0.19					
1293	662.8332				mda			2.0	
					pc-3			1.9	
					mda			2.03	
					pc-3			1.81	
					mda			0.60	
					pc-3			0.51	
1321	510.7229				mda			55.9	
1322	648.8929				pc-3			25.6	
					mda			9.4	
1323	598.7916				pc-3			15.2	
					mda			>300	
1328	775.0434				pc-3			147	
1329	494.7202								

FIG. 46e



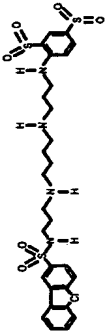
N1, N12-DISUBSTITUTED POLYAMINES: N1, N12-SULFONYLALKYLAMINEPOLYAMINE		TRANSPORT>CELL LINE		Ki	GROWTH INHIBITION>CELL LINE	HALF EFFECT DRUG DFMO	IC50
ID	MOL WEIGHT	STRUCTURE					
1349	598.6832						

FIG. 46f



REPLACEMENT SHEET

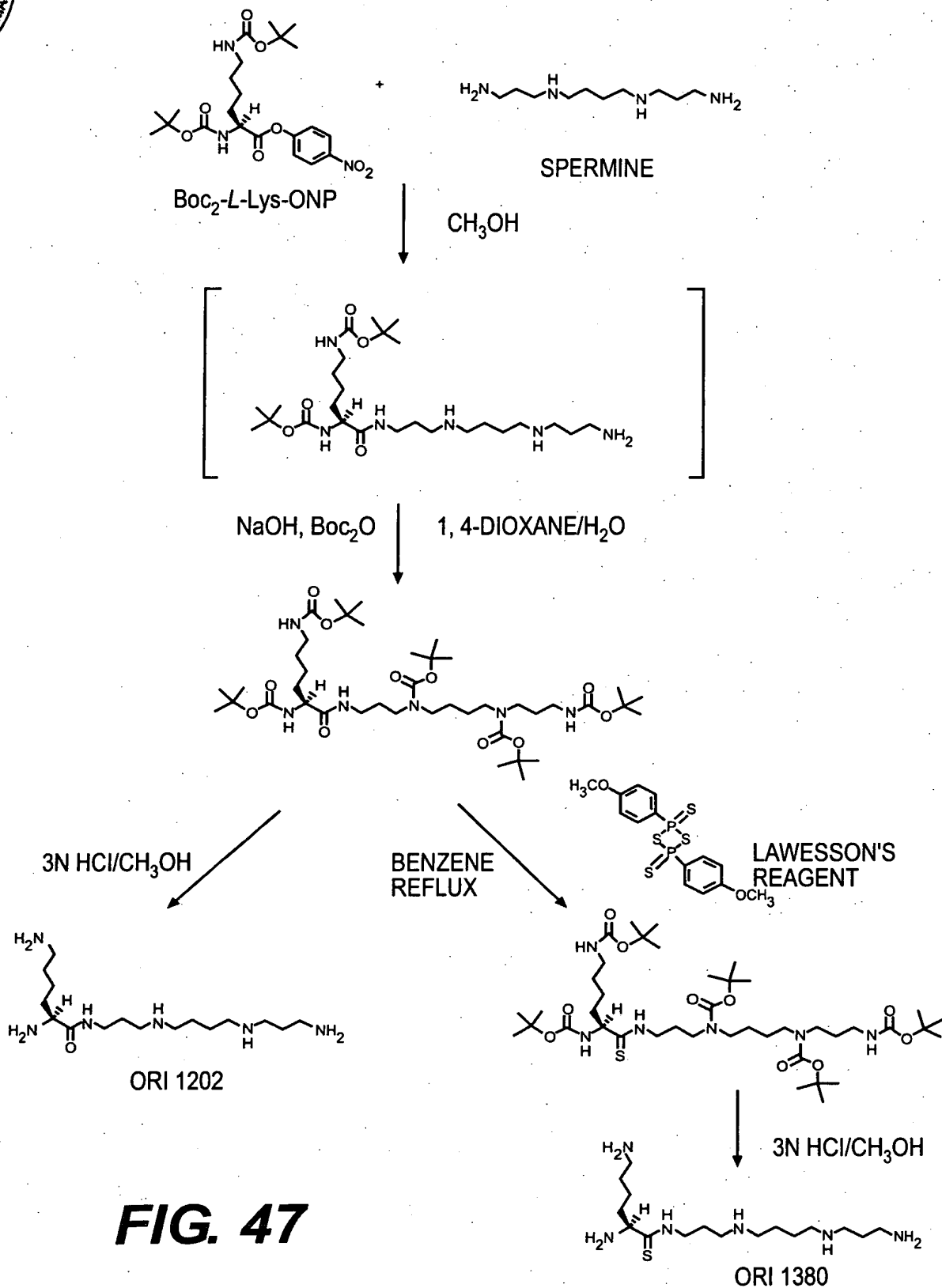
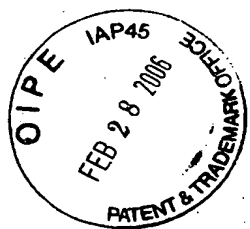


FIG. 47



REPLACEMENT SHEET

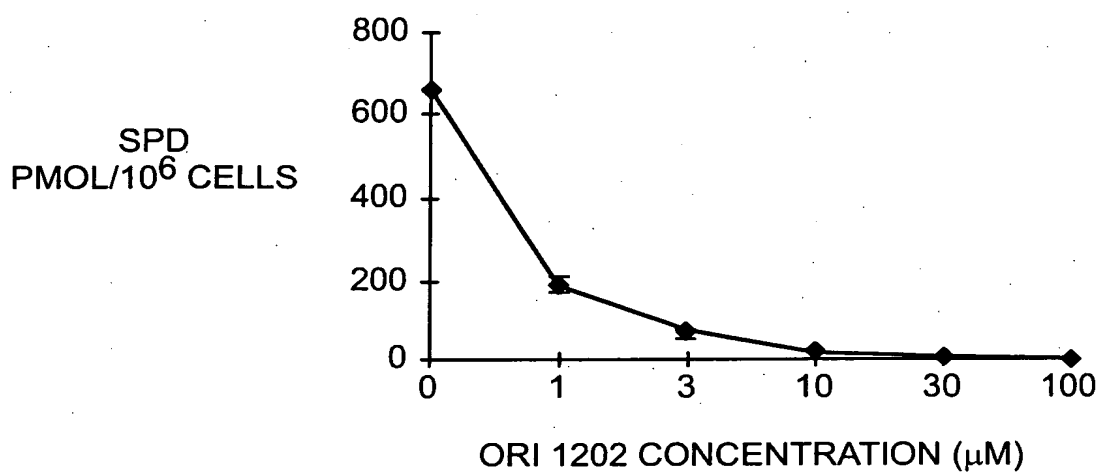
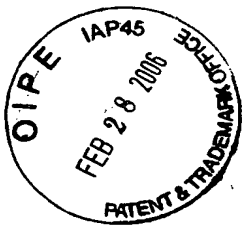


FIG. 48



REPLACEMENT SHEET

ORI 1202
PMOL/10⁶ CELLS

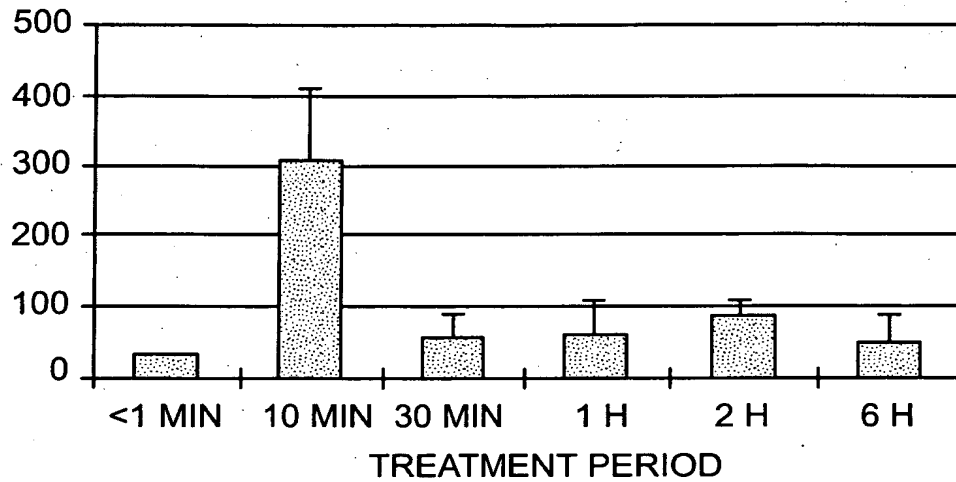


FIG. 49A

POLYAMINE
PMOL/10⁶ CELLS

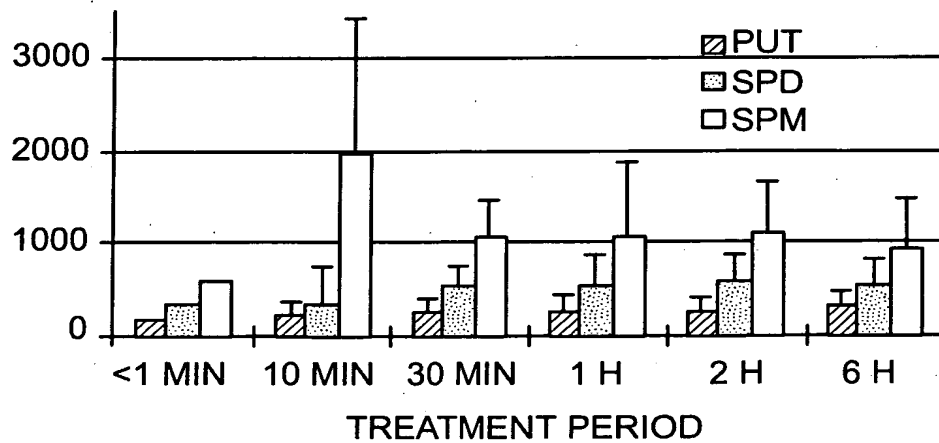
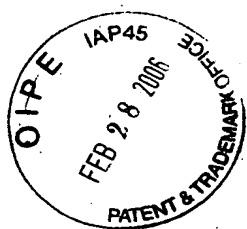


FIG. 49B



REPLACEMENT SHEET

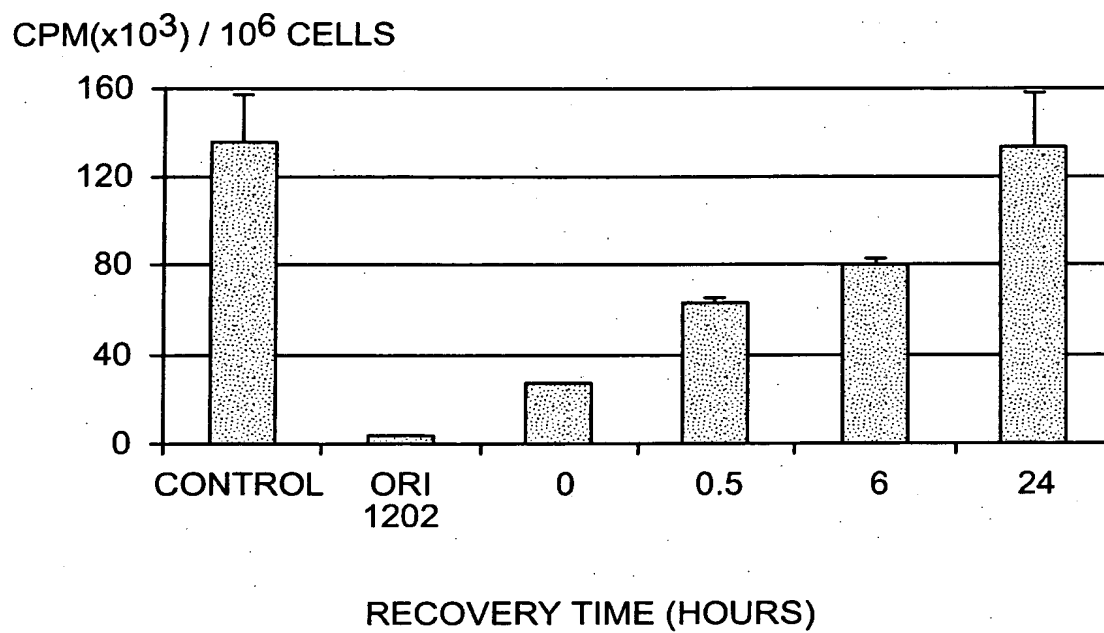
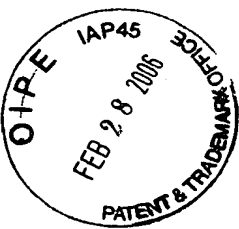


FIG. 50



REPLACEMENT SHEET

CELL NUMBER
(% OF CONTROL)

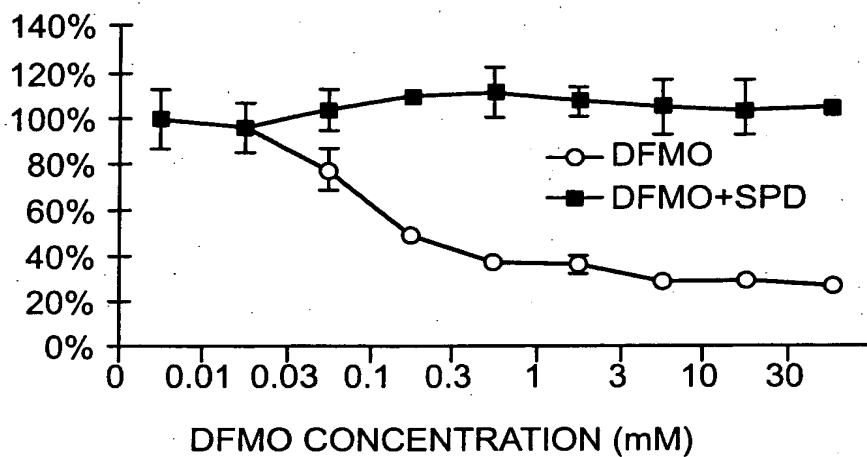


FIG. 51

CELL NUMBER
(% OF CONTROL)

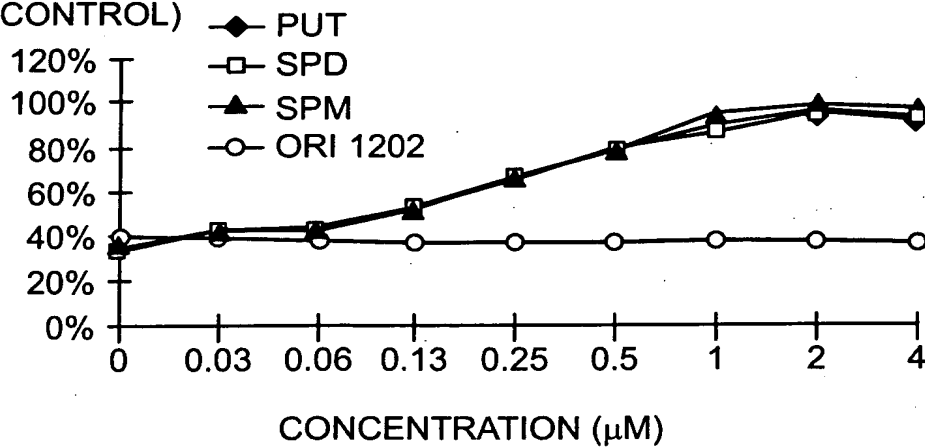
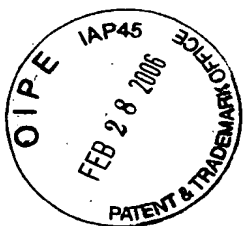


FIG. 52



REPLACEMENT SHEET

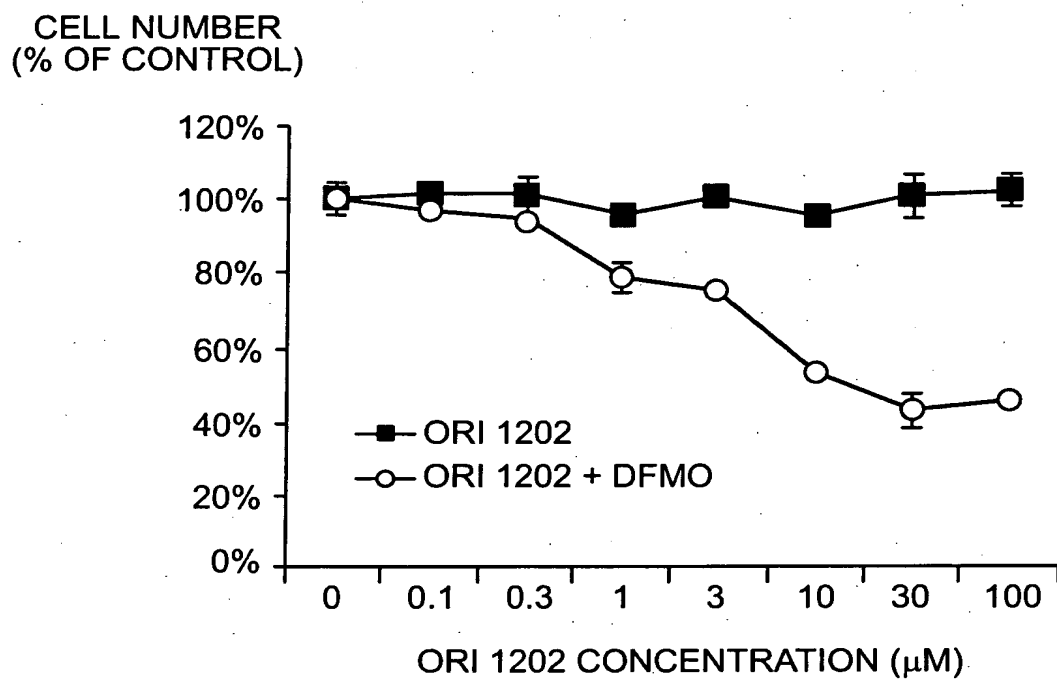
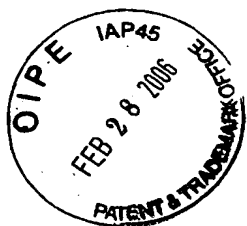


FIG. 53



REPLACEMENT SHEET

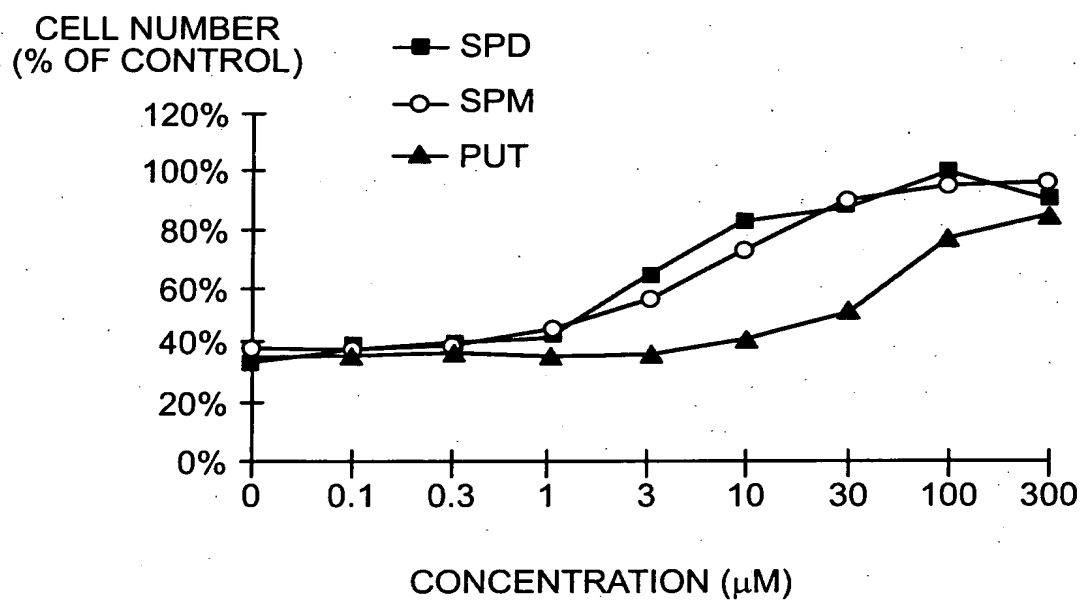
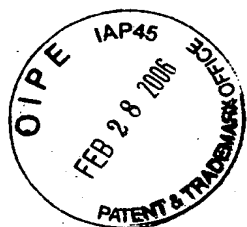


FIG. 54



REPLACEMENT SHEET

CELL NUMBER
($\times 10^6$) / FLASK

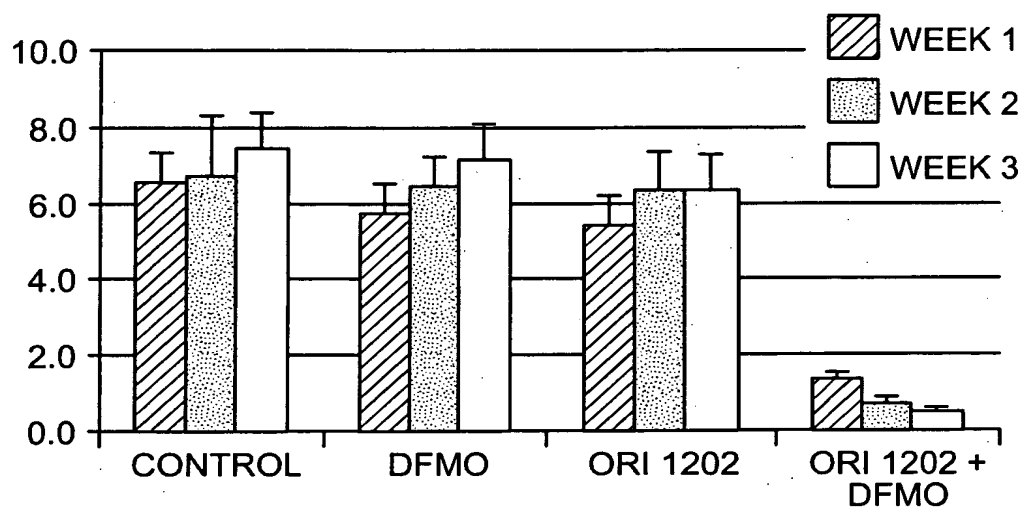
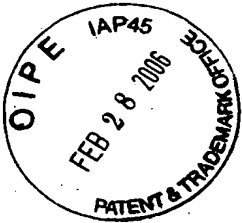


FIG. 55



REPLACEMENT SHEET

POLYAMINE LEVEL
(PMOL/ 10^6 CELLS)

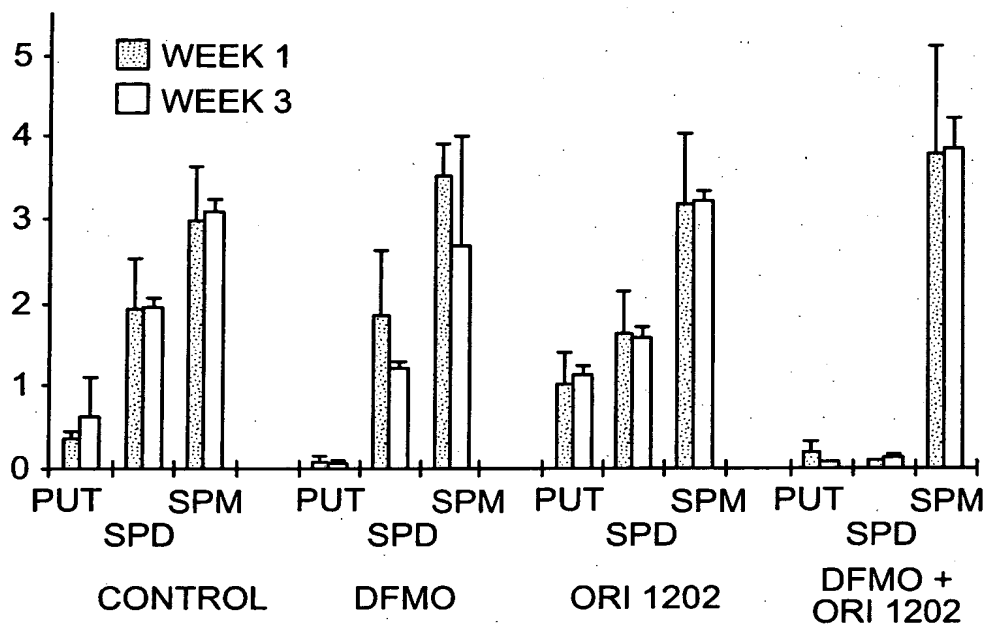
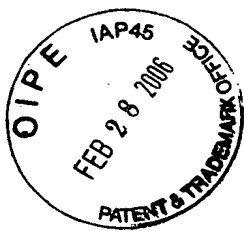


FIG. 56



REPLACEMENT SHEET

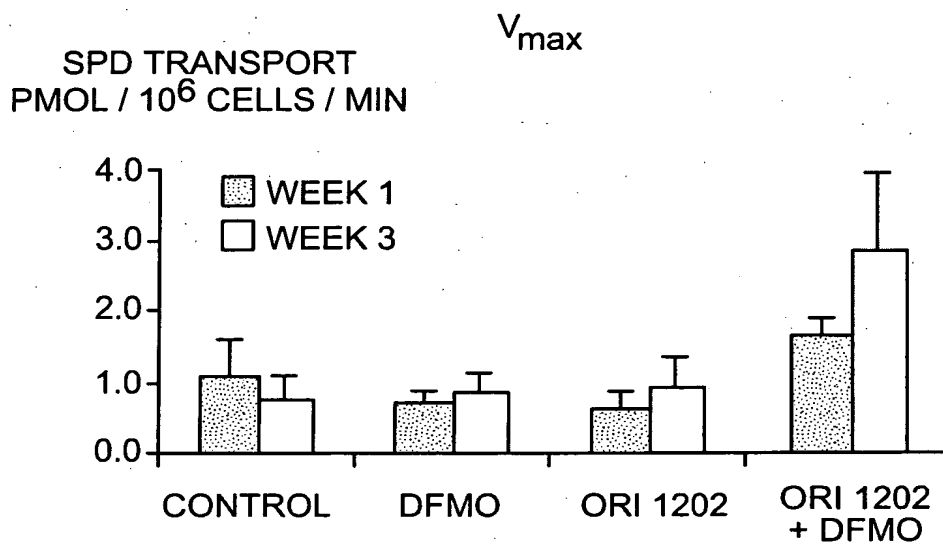


FIG. 57A

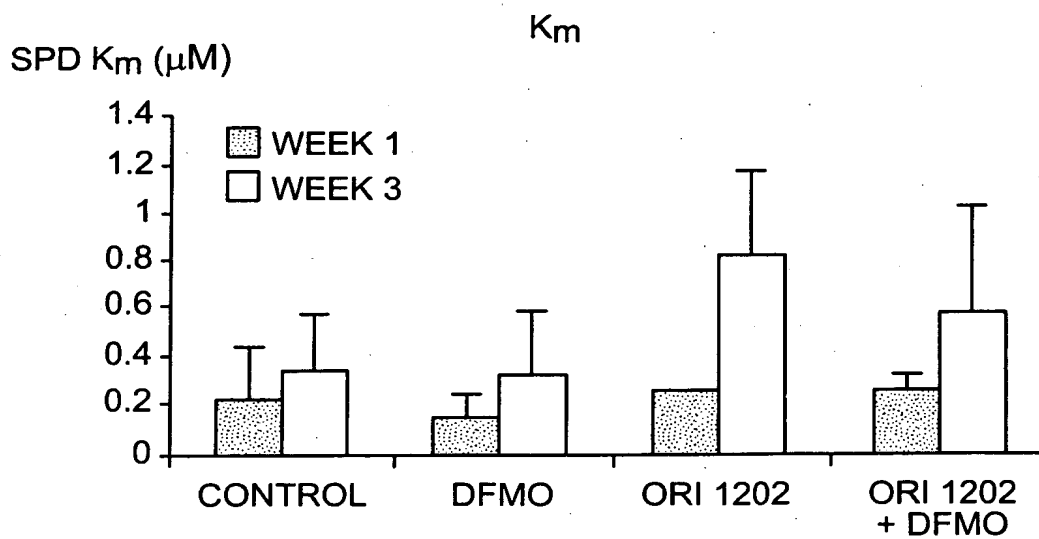


FIG. 57B

POLYAMINE LEVELS (pmol/MILLION CELLS) IN MDA CELLS AFTER EXPOSURE TO
ORI 1202 (30 μ M)

Q	BACKGROUND					
	<u>≤1 MIN.</u>	<u>10 MIN.</u>	<u>30 MIN.</u>	<u>1 HR.</u>	<u>2 HR.</u>	<u>6 HR.</u>
ORI 1202	32.5 (1X)	198.5 (6.1X)	52.2 (1.6X)	40.2	85.3	48.5 (1.5X)
SPM	591.7	606.8 (1X)	1955.2 (3.2X)	1038.2 (1.7X)	1071.17	935.8 (1.5X)
SPD	398.6	345.2 (1X)	358.3 (1.0X)	529.2 (1.5X)	554.6	519.5 (1.5X)
PUT	217.5	180.2 (1X)	217.9 (1.2X)	269.2 (1.5X)	279.7	318.5 (1.8X)

FIG. 58

REPLACEMENT SHEET

